Service Manual

Turntable System

SL-1200LTD

DIRECT DRIVE
Turntable System

Colour

(K)...Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(EG)	Germany and Italy.	

SPECIFICATIONS

■ General

Power supply: 110–120/220–240 V, 50 or 60 Hz
Power consumption: 16 W
Dimensions: (W×H×D) 453×162×360 mm
Weight: 12.5 kg

■ Turntable section

Type: Quartz direct drive
Manual turntable
Drive method: Direct drive
Motor: Brushless DC motor
Turntable platter: Aluminum diecast
Diameter 332 mm
Weight 2 kg
Turntable speeds: 33-1/3 r/min and 45 r/min
Starting torque: 1.5 kg·cm
Build-up characteristics: 0.7 s. from standstill to 33-1/3 r/min
Braking system: Electronic brake
Wow and flutter: 0.01% W.R.M.S.*
0.025% W.R.M.S. (JIS C5521)
±0.035% peak (IEC 98A Weighted)

*This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble: −56 dB (IEC 98A Unweighted)
−78 dB (IEC 98A Weighted)

■ Tonearm section

Type: Universal
Effective length: 230 mm
Arm height adjustment range: 31.8–37.8 mm
Overhang: 15 mm
Effective mass: 12 g (without cartridge)
Offset angle: 22°
Friction: Less than 7 mg (lateral, vertical)
Tracking error angle: Within 2°32' (at the outer groove of 30 cm record)
Within 0°32' (at the inner groove of 30 cm record)
Stylus pressure adjustment range: 0–2.5 g
Applicable cartridge weight range: 6–10 g
13.5–17.5 g (including headshell)
(with auxiliary weight): 9.5–13 g
17–20.5 g (including headshell)
(with shell weight) 3.5–6.5 g
11–14 g (including headshell)
Headshell weight: 7.5 g

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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■ PARTS IDENTIFICATION

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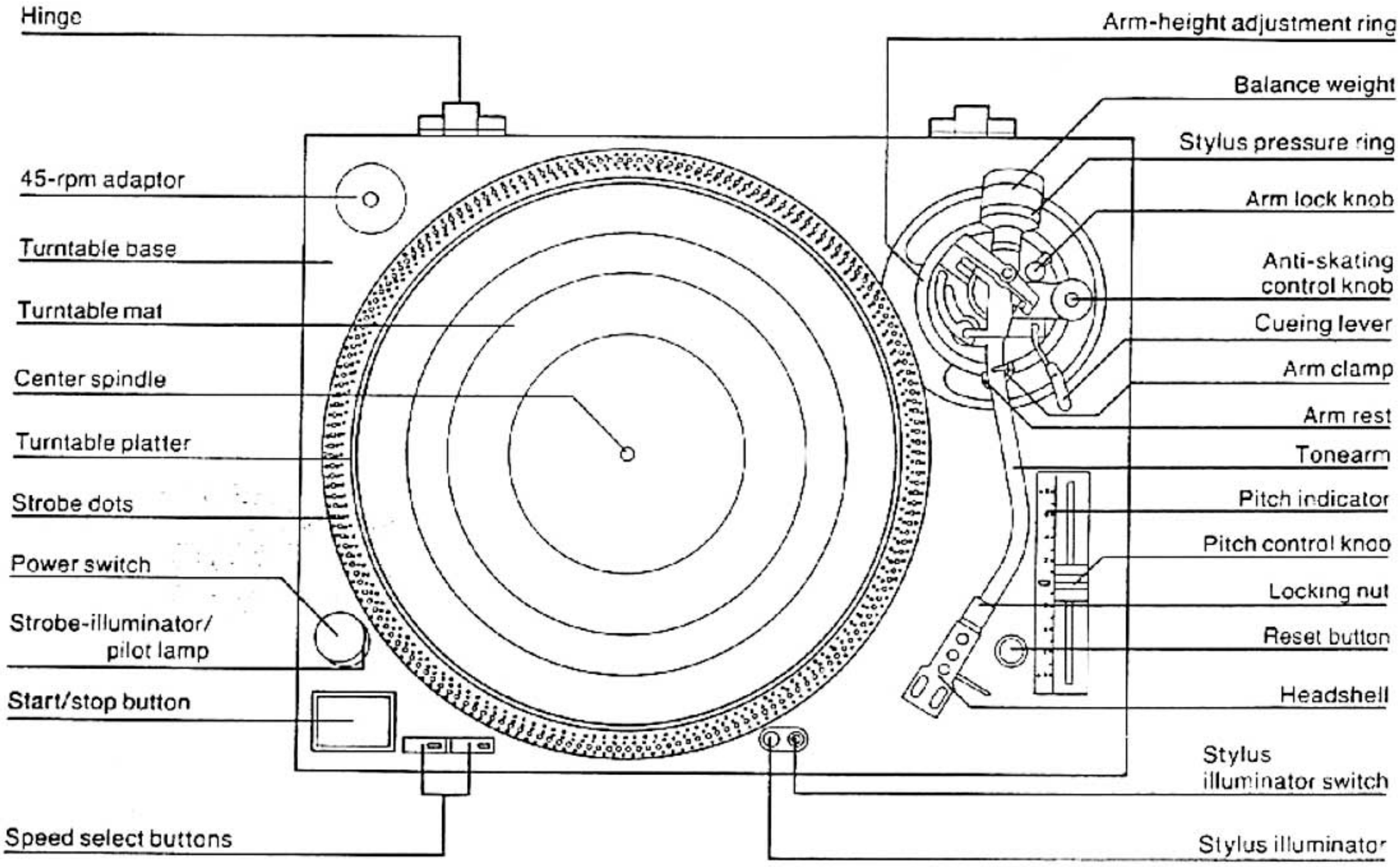

■ ASSEMBLY AND SET-UP

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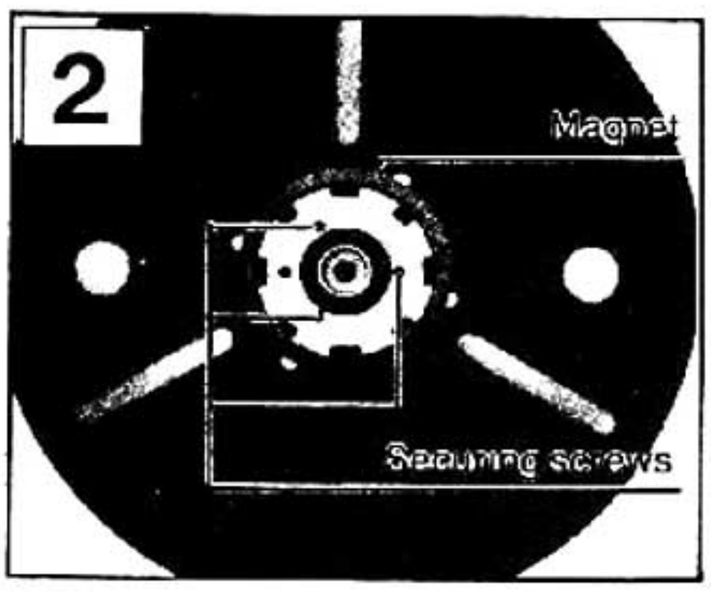

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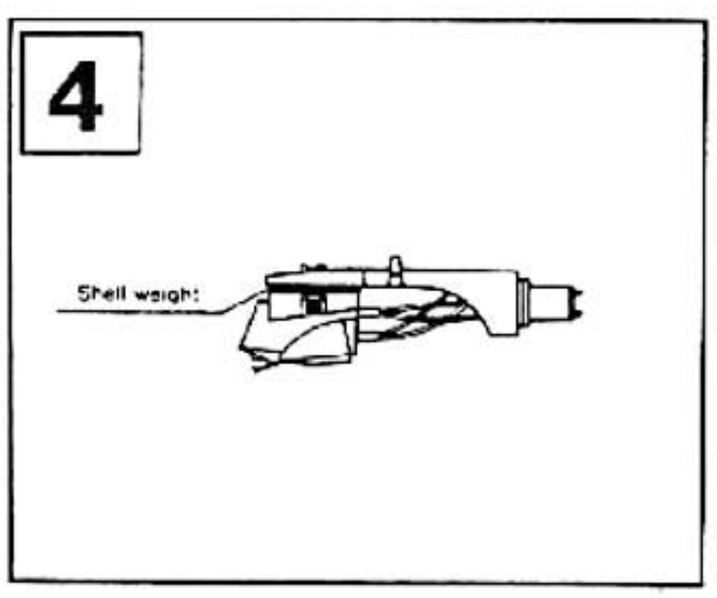

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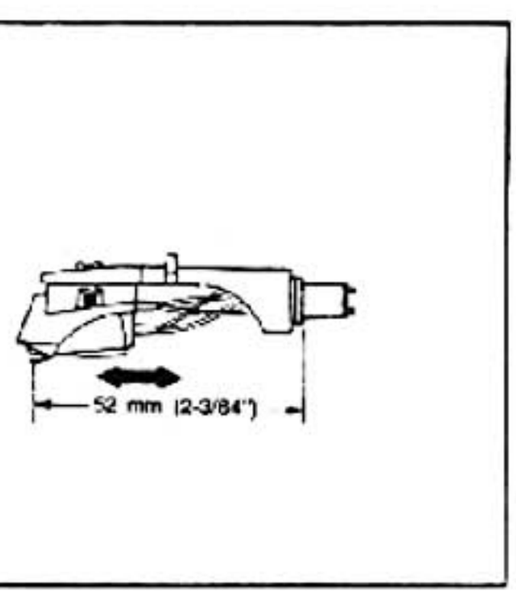

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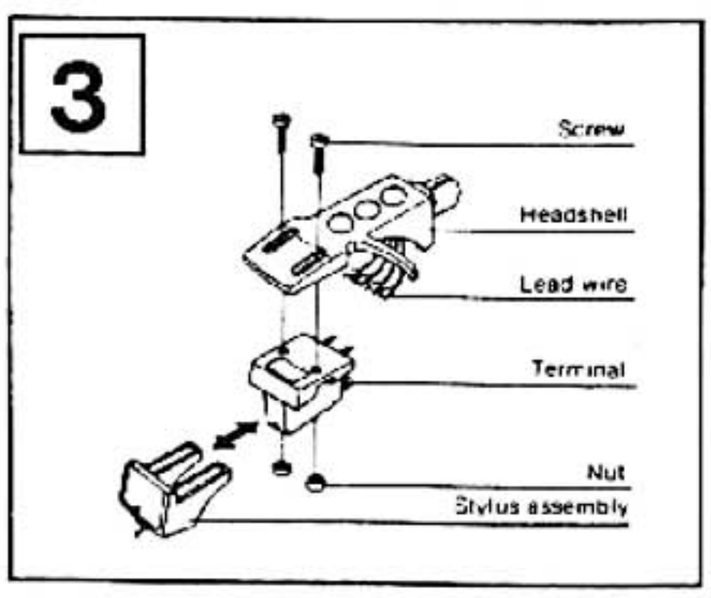

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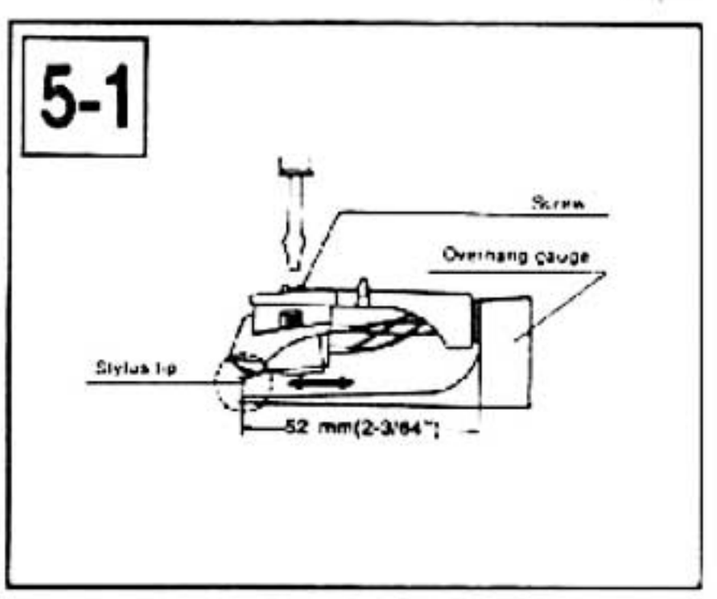

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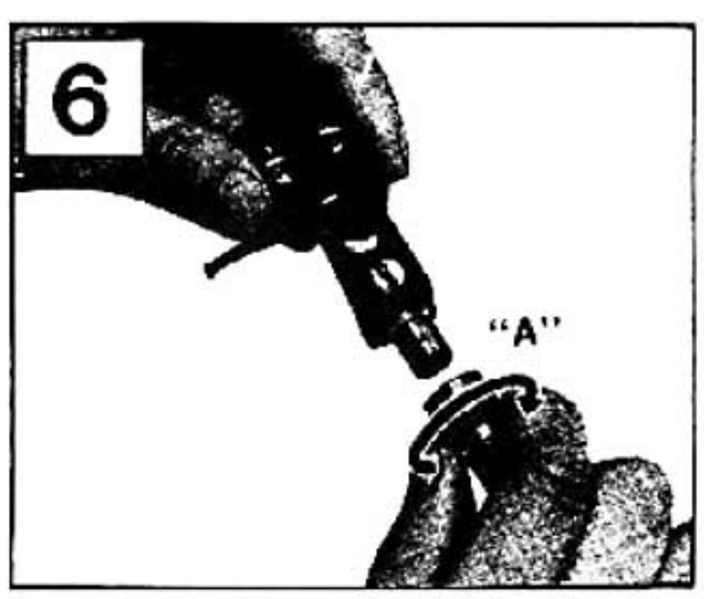

Assembly and set-up

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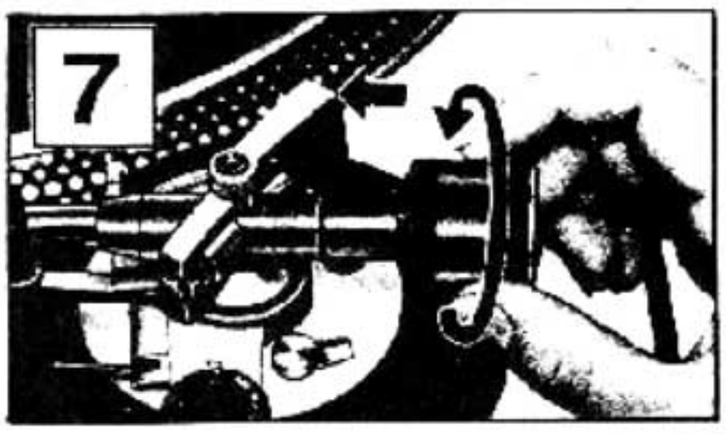

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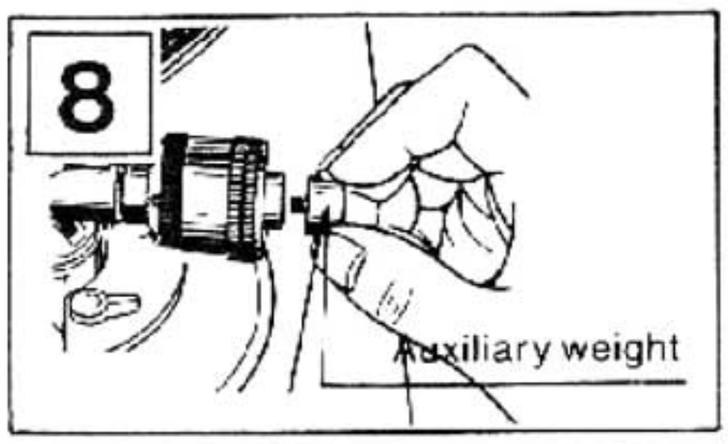

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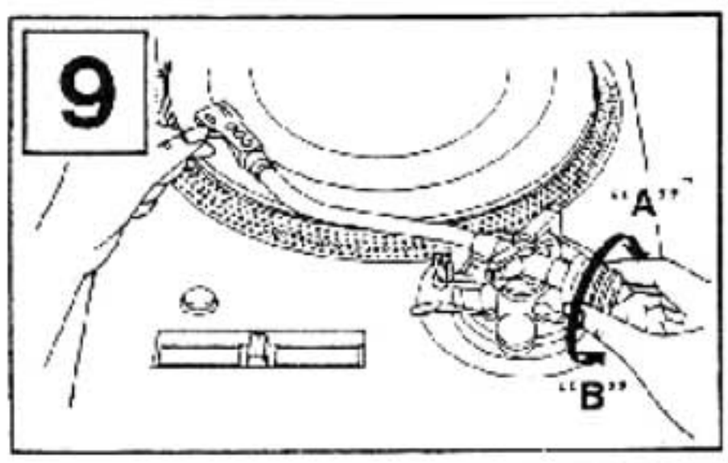

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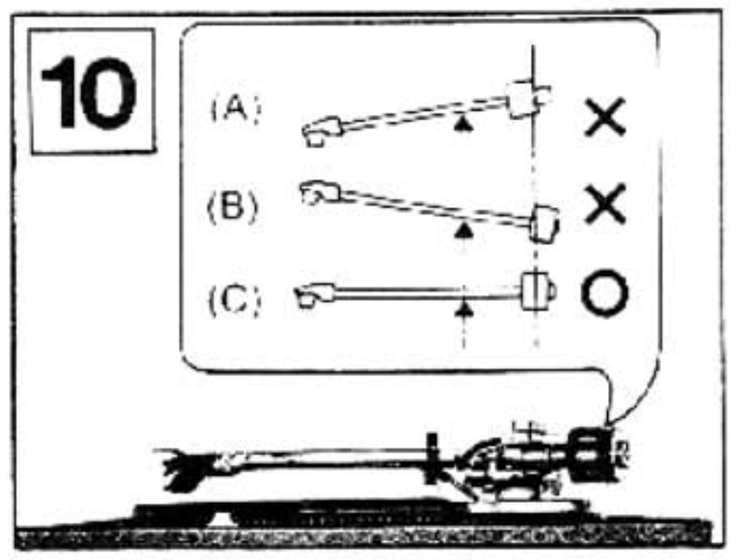

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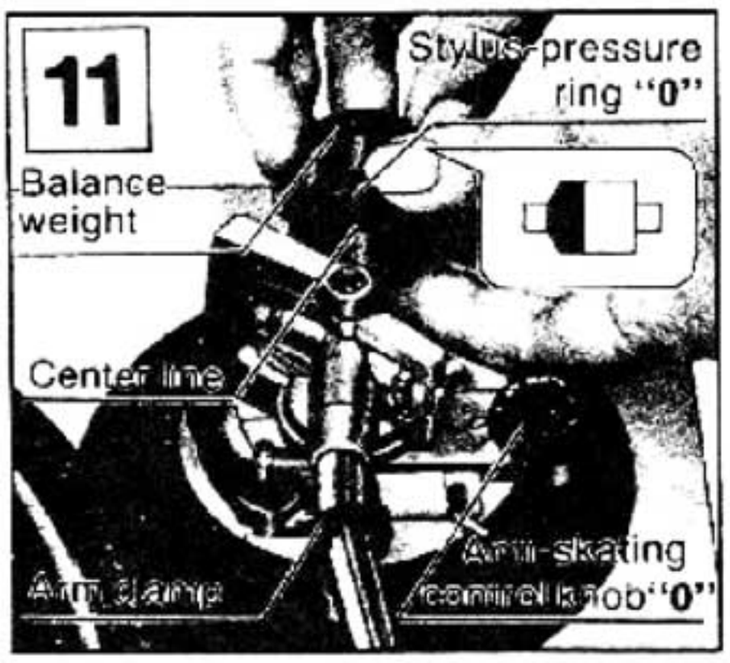

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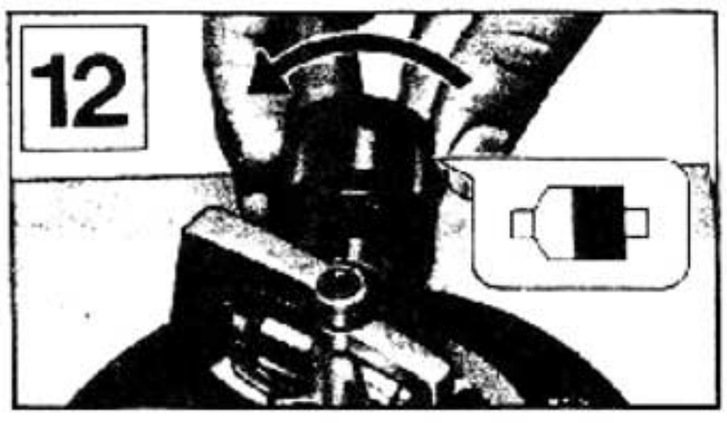

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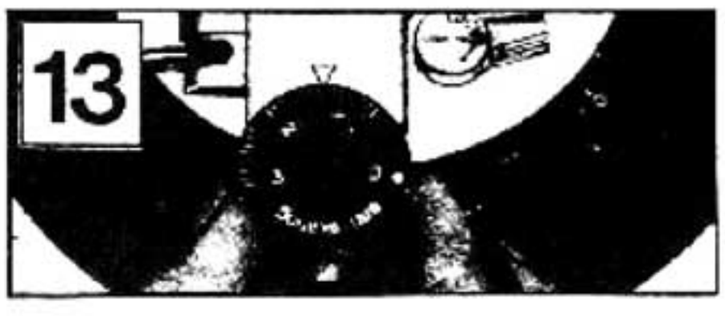

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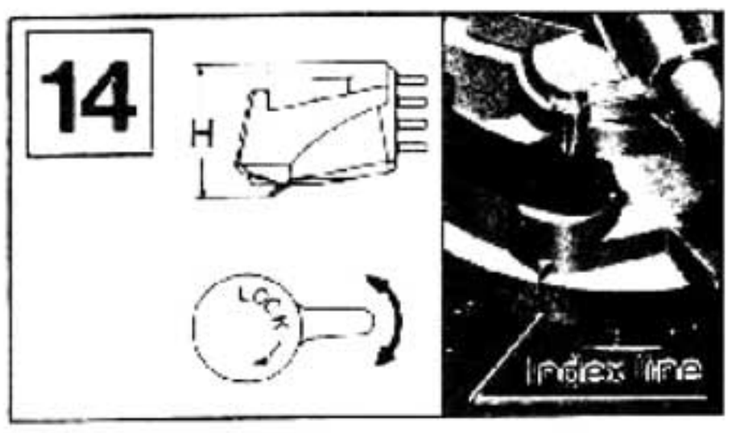

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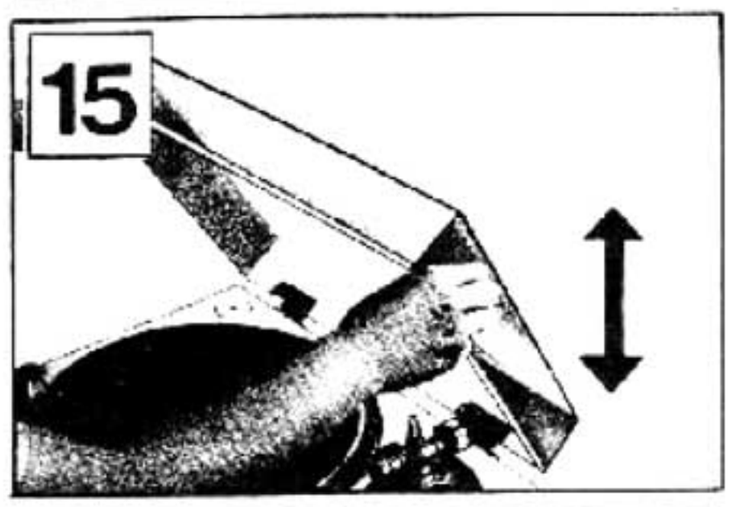

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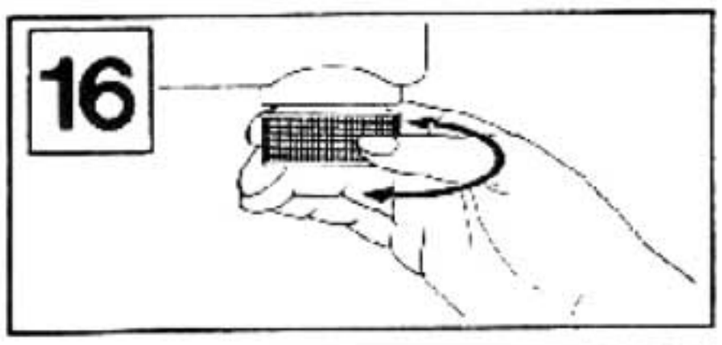

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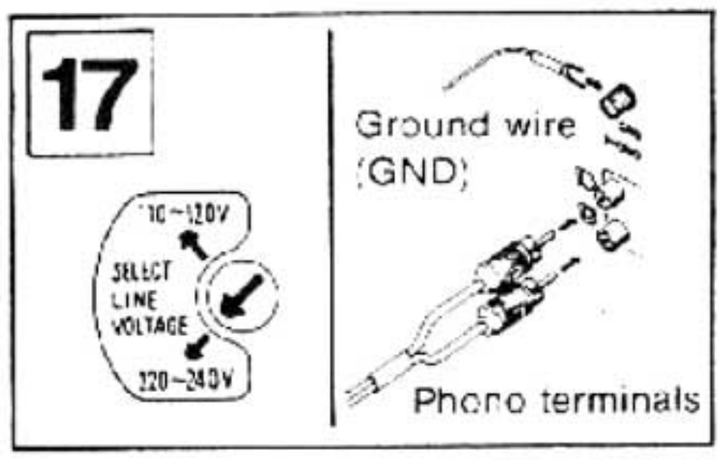

How to operate

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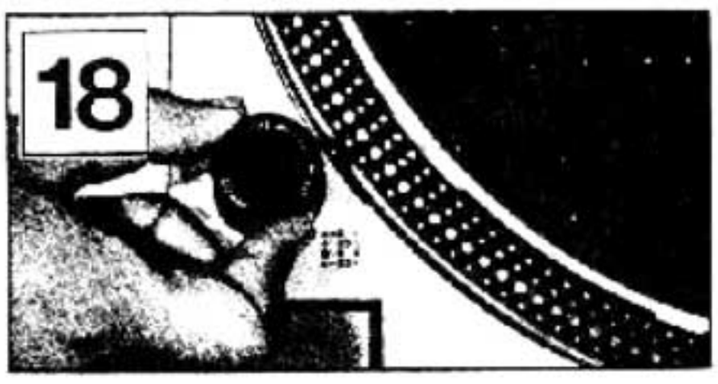

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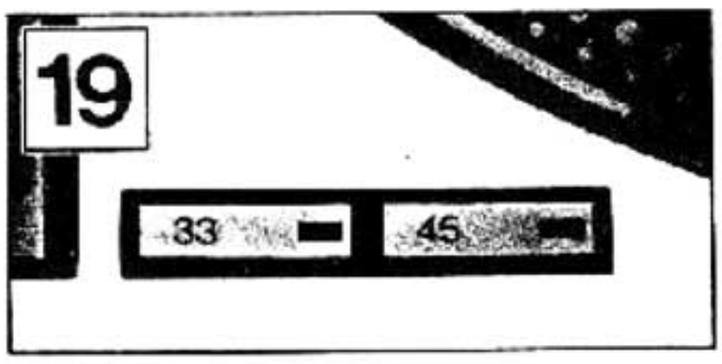

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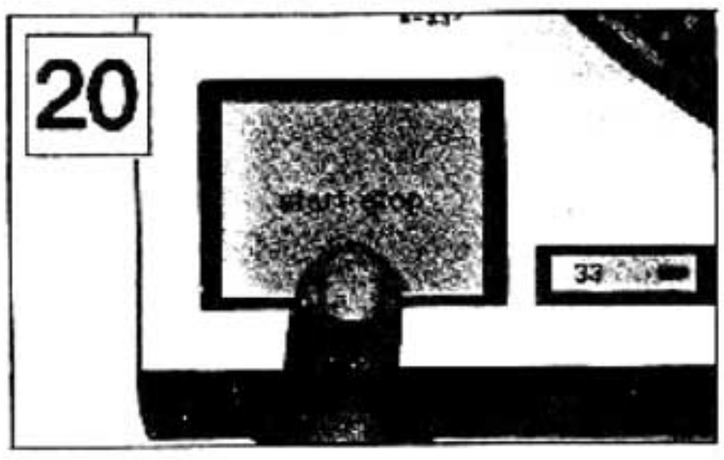

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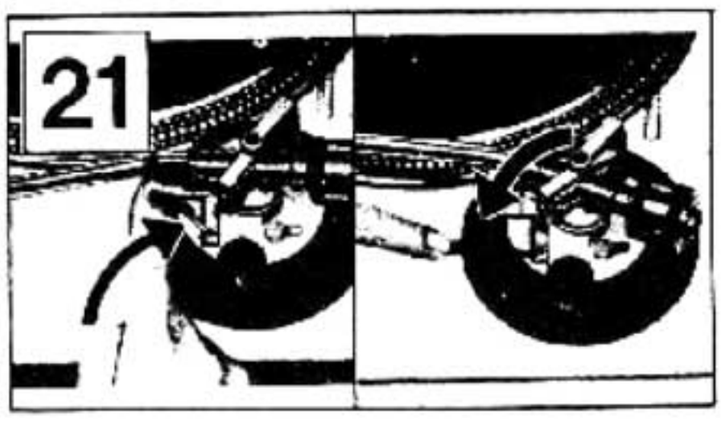

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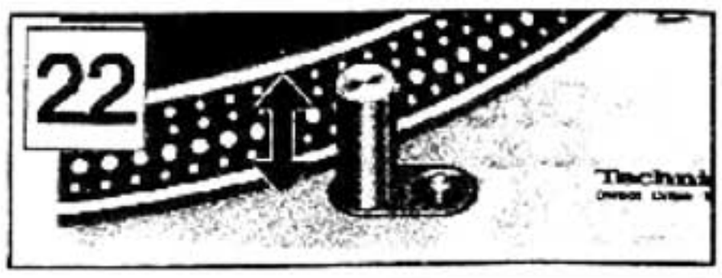

Adjustments

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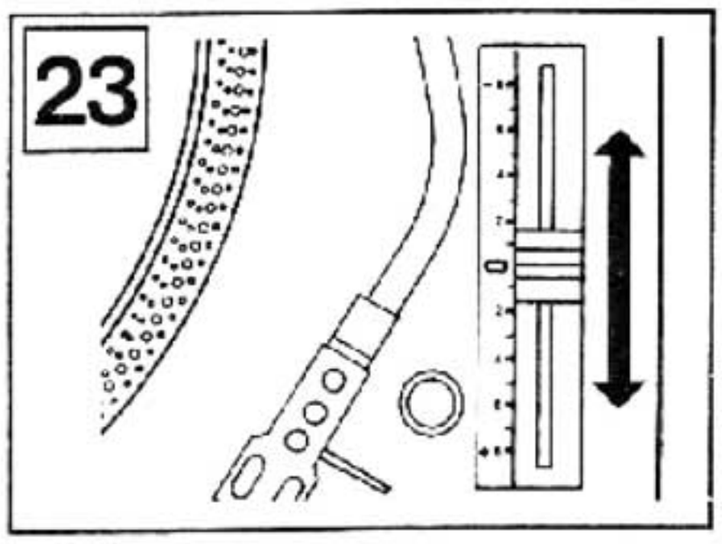

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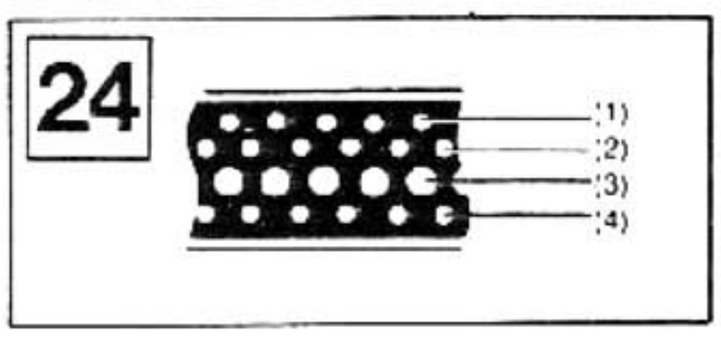

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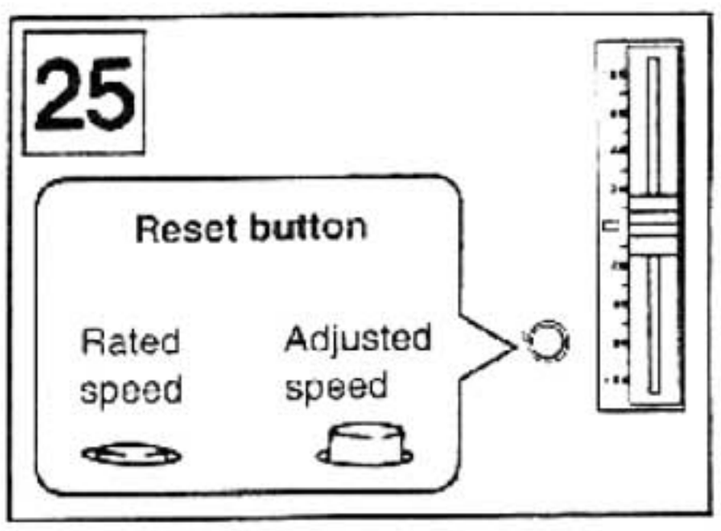

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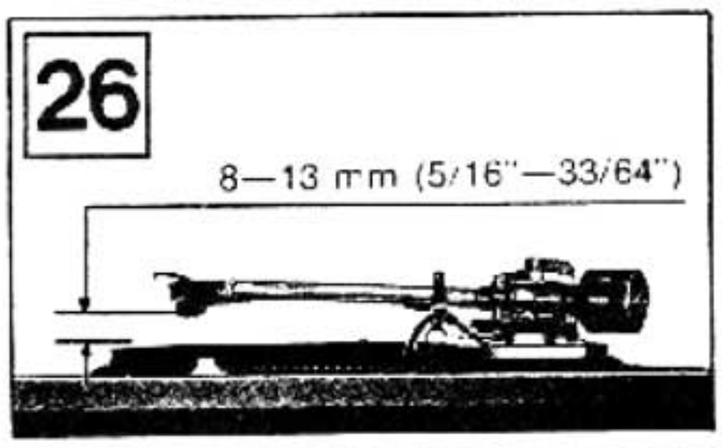

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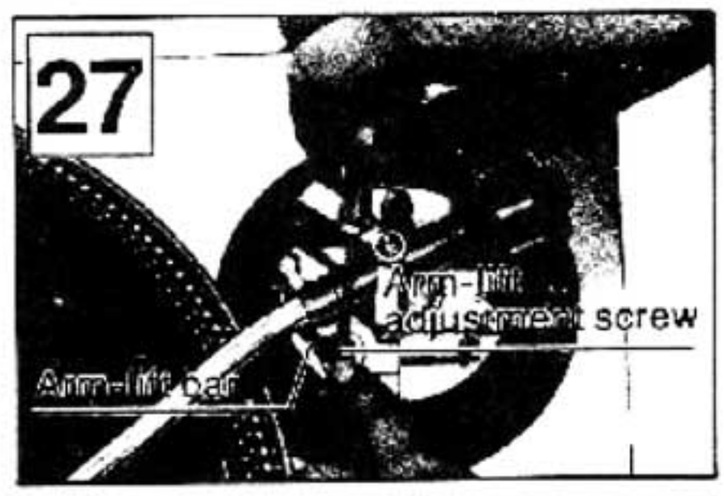

Notes and maintenance

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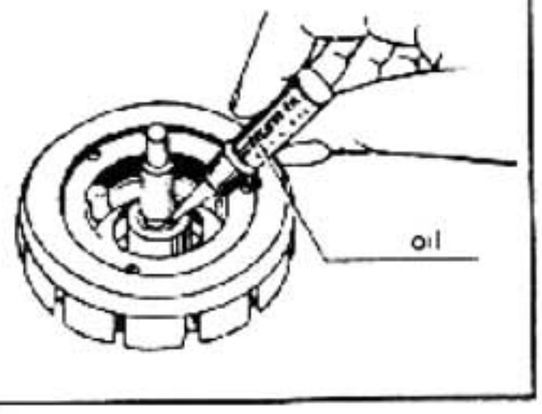


Before use

Caution:

Never connect the AC power plug before assembly has been completed.
Attach the dust cover last, so that assembly and adjustments can be made most conveniently.

Note:

The operating instructions are commonly applicable to units with cartridge and without cartridge, and also to those of different colors.
For the units without cartridge, the cartridge section of the specifications may be neglected.

■ Checklist of parts

Turntable unit 1
Turntable platter 1
Turntable mat 1
Dust cover 1
45-rpm adaptor 1
Balance weight 1
Auxiliary weight 1
Headshell 1
Shell weight 1
Overhang gauge (for the unit without cartridge) 1

Assembly and set-up

■ Installation of turntable platter

1. Place the turntable platter on the center spindle.
   Note:
   The rotor is connected to the underside of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance, extra care should be taken to prevent adhesion of dust or iron filings to the magnet and not to damage the magnet by dropping it.
   Do not remove or loosen the screws. Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit cannot be guaranteed. **(See Fig. 2.)**
2. Place the turntable mat on the platter.

■ Installation of cartridge (See Fig. 3.)

(For the unit without Cartridge)

When you install a cartridge, refer to the operation instructions of that cartridge.
During installation, attach the stylus protector to guard the stylus tip from damage.

1. Connect the lead wires to the cartridge terminals.
   The terminals of most cartridges are color coded. Connect each lead wire to the terminal of the same color.
   White (L+) ..... **Left channel+**
   Blue (L−) ..... **Left channel−**
   Red (R+) ..... **Right channel+**
   Green (R−) ..... **Right channel−**
2. Install a cartridge to the headshell, and tighten it with screws provided with the cartridge.
   Note:
   Use the shell weight only for a lightweight cartridge (less than 6.0 g). **(See Fig. 4.)**

■ Adjustment of overhang (See Fig. 5-1.)

(For the unit with overhang gauge)

1. Insert the headshell into the gauge.
2. Loosen the mounting screws and move the cartridge forward or backward until the stylus tip lines up with the edge of the gauge.
3. Tighten the mounting screws without moving the cartridge.
   Note:
   Your cartridge is now adjusted for lowest tracking error and minimum distortion.
   This gauge is exclusively designed for this tonearm.

■ Adjustment of overhang (See Fig. 5-2.)

(For the unit without overhang gauge)

The overhang of this unit is 15 mm.
Loosen the mounting screw and move the cartridge forward or backward until the distance between the stylus tip and the plug becomes 52 mm as shown in the picture.
Tighten the mounting screws without moving the cartridge
Adjust horizontal zero balance, stylus pressure and arm-lift height whenever you change the cartridge.

■ Installation of headshell (See Fig. 6.)

Insert the headshell into the front end of the tubular arm, and turn the locking nut clockwise (in the direction shown by the arrow "**A**"), with the headshell firmly held horizontally.

■ Installation of balance weight (See Fig. 7.)

Place the balance weight on the rear shaft of the tonearm.

Note:
In case the cartridge weight exceeds 10 g, it is necessary to fix the attached auxiliary weight over the rear shaft of the arm.
With this auxiliary weight in use, it is possible to use any cartridge whose weight is in the range of 9.5–13 g. **(See Fig. 8.)**

■ Adjustments of horizontal zero (0) balance and stylus pressure

1. Remove the stylus protector, if your cartridge has a detachable one. Be careful not to touch your fingers to the stylus tip.
2. Release the arm clamp and lift the tonearm from the arm rest to free it.
3. Turn the entire balance weight clockwise (indicated by the arrow "**A**") or counterclockwise (indicated by the arrow "**B**") until the tonearm is approximately balanced horizontally (floats freely). **(See Figs. 9 and 10.)**

Note:
(A)
Excessive forward advancement of the balance weight causes the cartidge side to be lowered.
(B)
Excessive backward retreatment of the balance weight causes the cartridge side to be raised.
(C)
Upon balancing between the balance weight and cartridge, the tonearm is held horizontal.

During the adjustment of the horizontal zero (0) balance, be careful that the stylus tip of the cartridge does not contact the turntable mat or turntable base.

4. After the tonearm is horizontally zero (0) balanced, temporarily refasten the tonearm with the arm clamp.
5. Hold the balance weight stationary with one hand as shown in the picture, and rotate only the stylus-pressure ring to bring the numeral "**0**" of the ring into alignment with the center line on the tonearm rear shaft. **(See Fig. 11.)**
   The adjustment of the horizontal zero (0) balance is now completed.
6. After adjusting the horizontal zero (0) balance, turn the balance weight clockwise in the direction of the arrow and align to the correct stylus pressure. **(See Fig. 12.)**
   (Follow the cartridge manufacturer's recommendation.)
   As the stylus-pressure ring moves in step with the balance weight, proper stylus pressure can be selected by directly reading the graduated ring.

■ Adjustment of anti-skating control

Set the anti-skating control knob to the same value as the stylus pressure. **(See Fig. 13.)**

■ Adjustment of tonearm height (See Fig. 14.)

The height of the tonearm can be adjusted up to 6 mm and a scale is provided on the adjust ring in 0.5 mm increments. Be sure to set the proper arm height using the adjust scale and referring to the table below.

Before adjusting the tonearm height, unlock the tonearm by turning the arm lock knob.

Height of cartridge (mm) (H)	Scale reading on the arm-height adjust ring
15	0
16	1
17	2
18	3
19	4
20	5
21	6

For example, if the cartridge height is 17.5 mm, the arm-height adjust ring should be positioned at the intermediate location between 2 and 3 on the scale. **(See Fig. 14.)**

Caution:

Be sure to lock the tonearm by turning the arm lock knob in the direction indicated by the arrow after finishing the height adjustment for the tonearm.

The height adjust ring should be used within a scale range of 0~6.

■ Installation of dust cover (See Fig. 15.)

Place the dust cover in position from directly above, holding it at both sides.For detaching the dust cover, be certain first to raise it as illustrated before removal.

Note:

Opening or closing of the dust cover during play should be avoided. This may not only cause undesired vibrations, but also result in skipping of the stylus.

If you must open the dust cover during play, do so as gently as possible.

■ **The legs/insulators also have functions for adjusting the height of the turntable unit itself. After installing the unit in the place for use, adjust the legs to stabilize the main body horizontally. (See Fig. 16.)**

Placement

■ **Place the unit in a stable and horizontal position, where there is little or no vibration.**

■ **Locate the unit as far away from the speakers as possible and isolate the unit from sound radiation from them.**

■ **Do not place the unit where it is exposed to direct sun, dust, moisture or heat.**

■ **Keep it in a well ventilated place.**

■ **When a radio is placed too close to the turntable and is played while the turntable is in operation, interference to AM/FM reception may result.**

Connections

■ Connect the output terminals (See Fig. 17.)

Output terminals		Amplifier or Receiver
L (White)	——→	L Channel
R (Red)	——→	R Channel
GND (Spade lug)	——→	GND

Note:

Be sure to connect the ground terminal firmly to the amplifier or receiver. If this connection is not made or is loose, a power source **"HUM"** will result.

■ Connect the AC power plug

Connect the AC power plug to an AC wall socket.

Caution:

Make sure that the turntable's AC line-voltage selector is matched to your local voltage before connecting the AC power plug.

Never connect to a DC socket.

If the pre-selected voltage is different from your local voltage, turn the AC line-voltage selector with a screw-driver so that it corresponds to your local voltge.

The AC line-voltage selector is located under the turntable platter. (See Fig. 17.)

How to operate

1. Place a record on the turntable mat.
2. Turn the power switch to the **"on"** position. **(See Fig. 18.)**
   The speed indicator for 33-1/3 rpm and the strobe-illuminator will all light up.
   Note:
   Since the unit has been designed to select 33-1/3 rpm automatically each time you push the power switch to **"on"**, push the 45 rpm speed select button if you play a 45 rpm record **(See Fig. 19.)**
3. Remove the stylus protector, if your cartridge has a detachable one.
4. Release the arm clamp.
5. Push the start • stop button. (See Fig. 20.)
   The turntable platter will start to rotate.
6. Set the cueing lever to the up position. **(See Fig. 21.)**
7. Move the tonearm over the desired groove.
8. Set the cueing lever to the down position. **(See Fig. 21.)**
   The tonearm will descend slowly onto the record and play will begin.
9. When play is finished, move the tonearm to the arm rest; secure the tonearm with the arm clamp.
10. Push the start • stop button.
    After the turntable is brought to a stop by means of the electronic brake, turn off the power.
    Note:
    The electronic brake does not function if the power switch is turned off before the start • stop button is pushed.

■ How to suspend play

Set the cueing lever to the **"up"** position.

The stylus tip of the cartridge will be lifted from the record.

■ When you play a 45-rpm record with a large center hole

Place the 45-rpm adaptor on the center spindle. Push the 45 speed select button.

■ Stylus illuminator (See Fig. 22.)

This unit is provided with a stylus illuminator for illuminating the stylus tip during play.
By pressing the stylus illuminator switch, the stylus illuminator is raised into position for illuminating the stylus tip. When not in use, keep the stylus illuminator lowered through depression.

Note:
The switch must be firmly engaged.
Incomplete depression of the switch will not raise the illuminator even though the lamp is lit.

Adjustments

■ Pitch control (fine adjustment of speed)
(See Figs. 23 and 24.)

When the pitch control knob is located at the center of the position after turning on the power, the green LED indicator is lit showing the operating condition for the predetermined speed (either 33-1/3 or 45 rpm). The pitch control is variable in a range of about ±8%.
Figures on the indicator show approximate percentages for variable pitch control.

When the strobe dots in 4 stages marked at the peripheral edge of the turntable appear to be stationary, variation of individual pitches is shown. **(See Fig. 24.)**
When (1) appears stationary, it shows a +6% pitch variation.
When (2) appears stationary, it shows a +3.3% pitch variation.
When (3) appears stationary, it shows normal turntable speed, 33-1/3 or 45 rpm.
When (4) appears stationary, it shows a −3.3% pitch variation.

Note:
The strobe-illumination of this unit employs a strobe-illuminator LED synchronized with the precise quartz frequency.
For fine adjustment of the turntable speed, be sure to effect the adjustment according to the LED illumination.
Also keep the reset button released.
The LED illumination is not synchronized using fluorescent lamps.

■ Reset button (See Fig. 25.)

- : The turntable rotates at the rated speed (33-1/3 or 45 rpm) no matter where the pitch control knob is positioned, and the green LED indicator is illuminated.
- : The turntable rotates at the speed which has been adjusted by the pitch control knob.

■ Adjustment of arm-lift height
(See Figs. 26 and 27.)

The arm-lift height (distance between the stylus tip and record surface when the cueing lever is raised) has been adjusted at the factory before shipping to approximately 8~13 mm.
If the clearance becomes too narrow or too wide, turn the adjustment screw clockwise or counterclockwise while pushing the arm lift down.
Clockwise rotation
—distance between the record and stylus tip is decreased.
Counterclockwise rotation
—distance between the record and stylus tip is increased.

Note:
As the adjusting screw has a hexagonal head, be sure to make the adjustment while depressing the arm lift, or the screw will not move freely.
Also be sure that the hexagonal head retracts correctly into the arm lift when the latter is released.

Notes and maintenance

■ **Use utmost care when handling the platter and when placing it on the motor shaft to prevent possible damage to the magnet.**

■ **Do not turn "on" the power supply, with the turntable platter detached.**

■ **Before detaching or attaching the headshell, be sure to turn the power of the amplifier or receiver off.**
Detaching or attaching of the headshell with the volume control turned up may cause damage to the speakers.

■ **When play is finished, be sure to secure the tonearm with the arm clamp.**
After play is finished, if the unit is not to be used for some time, care should be taken to secure the tonearm to protect the stylus tip.
For the same reason, the stylus protector should also be attached.

■ **Dust and dirt should be carefully removed from stylus tip or records.**
Dust and dirt on the stylus tip or record may not only result in deterioration of tone quality, but also cause undue wear of the record and the stylus tip itself.
Special stylus tip brushes and record cleaners can be purchased in most electronic supply houses.

■ **Wipe the headshell terminals from time to time.**
Dust and dirt at the headshell terminals may result in increased **"HUM"** noise or intermittent sound. Use a soft dry cloth to clean the headshell terminals.

■ **Wipe the dust cover and turntable base with a soft, dry cloth.**
Never use any cleaners containing alcohol, benzine or thinner.
Use of a chemical dust cloth should also be avoided. Be sure that the dust cover is not exposed to insecticide spray.
To remove stubborn fingerprints or grease spots, detach the dust cover and disconnect the AC power plug.
Use a soft cloth slightly moistened with a mild soap and water solution.
Do not wipe the dust cover during play, or the tonearm may be attracted toward the dust cover due to the generation of static electricity.

■ **Lubrication (See** Fig. 28.)
Apply 2 or 3 drops of oil once after every 2000 hours of operation.
The time interval is much longer than that for conventional type motors (200–500 hours).
Please purchase original oil. **(Part number is SFWO 010.)**

■ **Transportation of the unit to distant places for removal and the like.**
Pack up the unit in the reverse order to that for unpacking, using the packing materials furnished when the unit was purchased. Should there be no such packing materials, be sure to take the following steps.

- Remove the turntable platter together with the turntable mat, and wrap it up to prevent any damage to them.
- Return the tonearm to the arm rest, and affix it with tape or the like.
- Remove the balance weight and the headshell/cartridge from the tonearm and then wrap them up to avoid any damage to them.
- Wrap up the turntable base with a blanket or soft paper also to prevent any possible damage to it.

For longer and safer use of this unit

In order to receive the best service from this unit, and for the safest operation, carefully read the following information.

■ **Power source**
It is very dangerous to use this unit at a voltage which is different from the rated voltage.
There is danger of combustion if the unit is connected to a power source which is different from the rated voltage.
Be very careful concerning this point.
Direct current cannot be used.
There are some places, such as ships, where direct current is used as the power source. Before connecting the unit, confirm the power source.

■ **Connection of power cord**
Be sure to never touch the power cord with wet hands because there is danger of electric shock. This is true, of course, of all electric equipment.
Do not pull the power cord.
Never pull the power cord to disconnect it. Always pull the plug only.

■ **Location of unit**
Choose a place which is not in direct sunlight.
Select a place which will assure good ventilation.

■ **Never place heating equipment nearby.**
Be sure to keep stoves and other sources of heat away from this unit, because heat radiated by such equipment may cause deformation of plastic parts or damage the cabinet, or, at worst, cause a fire.

■ **Especially for families with children**
Take care that no small items, such as metal objects, are put inside this unit.
In addition, children should be especially warned not to put anything into the ventilation holes, such as toys or a screwdriver, because these things may cause an electric shock or result in a malfunction of the unit.

■ **If water spills on the unit.**
If water should happen to spill on the unit, from an overturned vase for example, there is danger of fire or electric shock. Disconnect the power plug from the electric outlet immediately, and contact the store from which the unit was purchased.

■ **Reconstruction can cause accidents.**
Absolutely never try to remodel, reconstruct or repair this unit yourself. Do not attempt to touch any internal parts because to do so may result in an electric shock or other accident.

■ **Be sure the power is off.**
After you have finished using this unit, check once more to be sure that the power is off. If the unit is left with the power on for a long period of time, it may not only be damaged, thus shortening its useful life, but may also lead to a dangerous accident.

Features

■ Total quartz locked continuous pitch adjustment about ±8%

Quartz-phase-locked control means almost perfect accuracy of turntable rotation.
But with most quartz turntables, this accurate control circuit must be cut out when the pitch control is employed.
With the SL-1200LTD, however, pitch is variable continuously (analogically) by up to approximately ±8% under total quartz-locked control. The pitch is controlled with a large sliding lever, located to the right of the turntable platter.

Four lines of platter markings are also provided indicating +6%, +3.3%, 0% (exact rated speed) and −3.3% change from rated speed.

■ Aluminum diecast cabinet and special heavy rubber base material provide acoustic isolation

The effects of external vibrations are dramatically reduced in the turntable by this new turntable construction.
The turntable base is precision-made aluminum diecast. And the underside of the main base is made of a heavy rubber material which has excellent vibration resistance and absorbing characteristics. The turntable platter is also vibration-damped with specially fabricated rubber matting in the underside along with the thick turntable sheet (rubber mat). Four large-size insulating feet also help to absorb unwanted vibrations.
These features make the SL-1200LTD ideal for use with extra-high sound pressure levels.

■ High torque for fast starts

The integral rotor/platter motor delivers 1.5 kg·cm (1.3 lb·in) starting torque. This high torque gives very quick starts enabling the platter to reach 33-1/3 rpm within 0.7 s. (a quarter of a turn). This is a big advantage in many professional applications where fast cueing is a necessity.

■ Stylus illuminator for low-light conditions

■ High sensitivity, low mass, gimbal suspension tonearm

The highly sensitive tonearm features a genuine gimbal suspension, the rotational center of which is precisely defined at one point. Bearings are finished to a tolerance of ±0.5 microns. This, and the extra-closeness of pivot center to the bearings, result in the minimal friction of 7 mg (0.007 g) for both horizontal and vertical movement. Add to this the low 12-gram effective tonearm mass (including headshell, without cartridge) and you have a tonearm compatible with the wide range of compliances found in today's cartridges. If you choose a popular high compliance MM cartridge, the low range resonance frequency will appear in the correct area to avoid warp frequencies of records, but without entering the low end of the audio spectrum. This tonearm is provided with a computer designed, light-weight, high-rigidity headshell made of single-piece diecast aluminum to resist partial vibration. The universal design allows headshell interchangeability. Contacts are gold-plated.

■ Helicoid tonearm height adjustment

Arm height is adjustable within a range of 6 mm to accommodate varying cartridge dimensions. Adjustments are done with a precision-made helicoid.

■ Other fine features

- Quick stops are achieved with a fully electronic braking system.
- A strobe illuminator is provided. The stroboscope is controlled by the extremely stable quartz oscillator, rather than potentially unstable AC line frequency.
- Power on/off control built-into strobe illuminator for ease of operation.
- Soft-touch start • stop switch allowing precision control capability without the annoyance of accidental operation.
- Technics integral rotor/platter motor construction with full cycle detection FG.

■ OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Illustrated screws are equivalent to actual size.
5. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

• Contents

•Checking Procedures for each P.C.B. Page.

1. Checking for the drive control P.C.B. and power supply P.C.B. ..... 9,10.

•Main Component Replacement Procedures

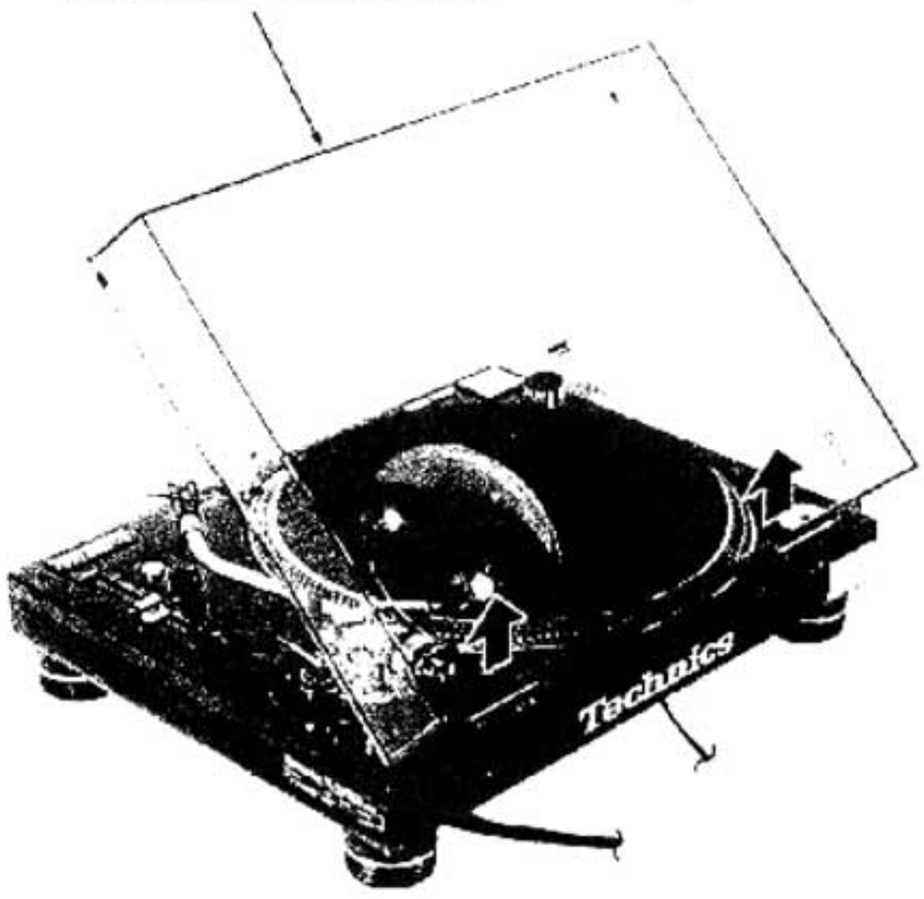
1. Replacement for the drive coil cover and drive coil ass'y. ..... 10,11.
2. Replacement for the tonearm unit. ..... 11~14.
3. Replacement for the lamp and stylus illuminator switch. ..... 15.
4. Replacement for the parts mounted on speed selector P.C.B. and power switch. ..... 15.

■ Checking Procedure for each P.C.B.

1. Checking for the drive control P.C.B. and power supply P.C.B.

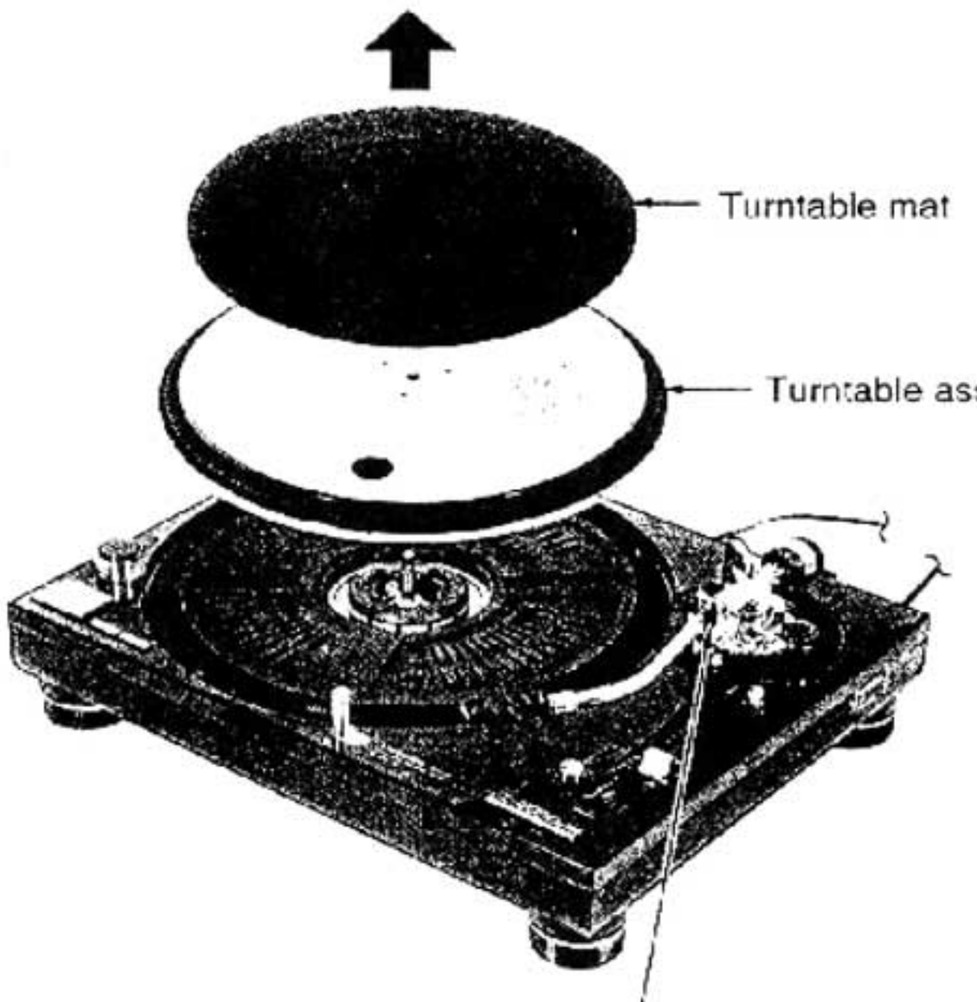
Step 1

Remove the dust cover.



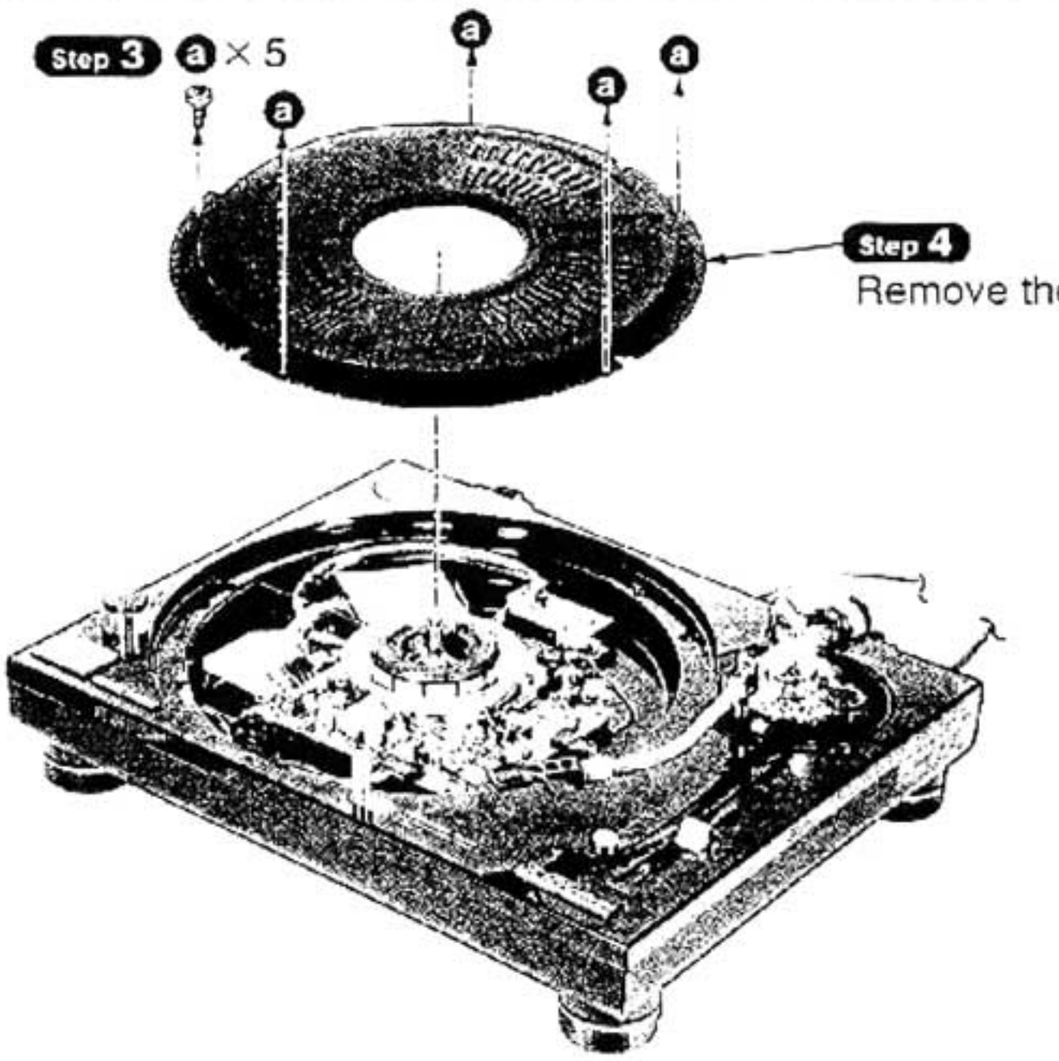
Step 2

Remove the turntable mat and turntable ass'y.



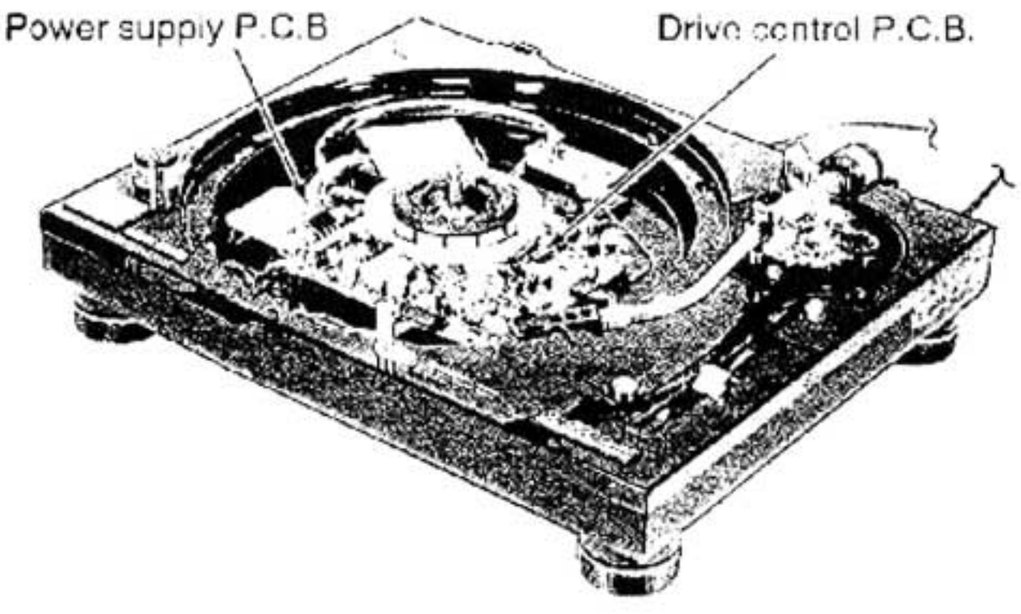
NOTE

The tonearm ass'y should be supportec by arm rest.



a (Black)
[XTN3+8JFZ]

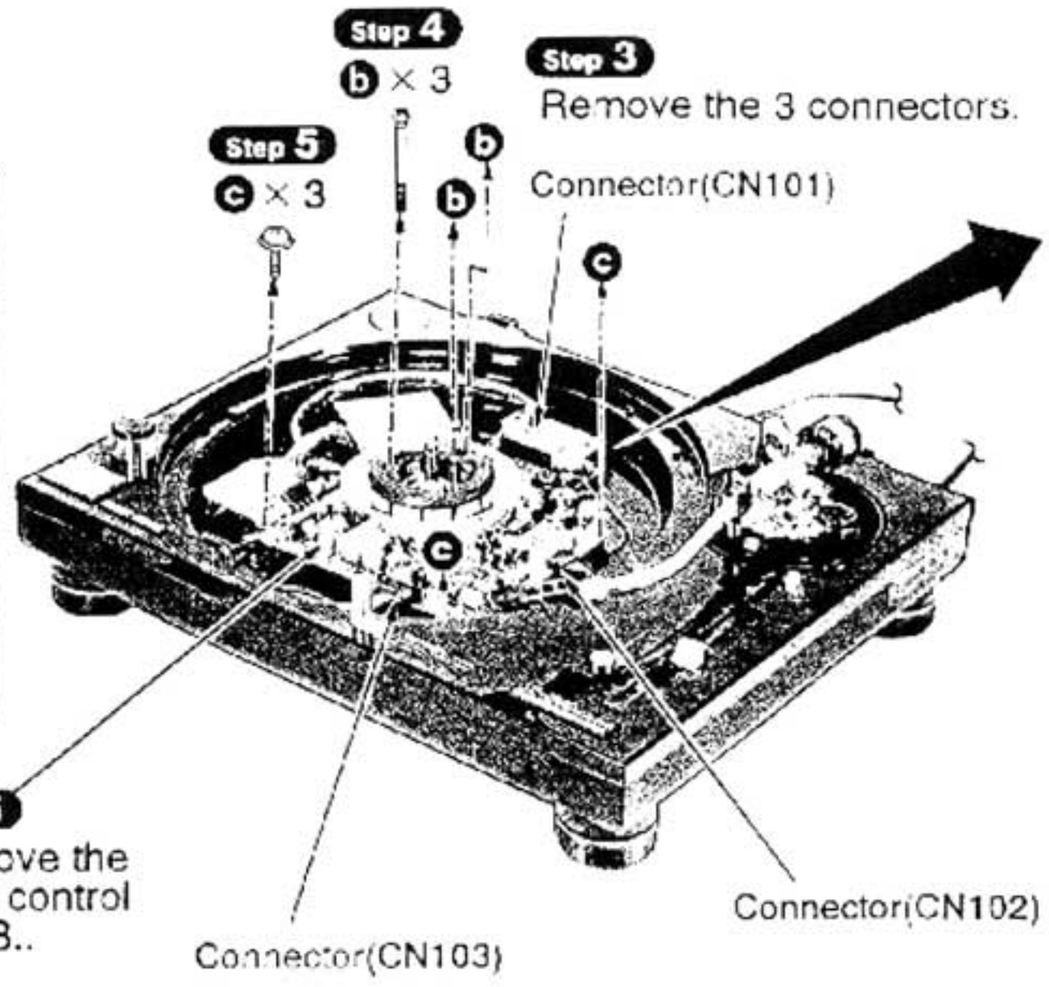
- **Check the drive control P.C.B. and power supply P.C.B. as shown below.**



■ Main Component Replacement Procedures

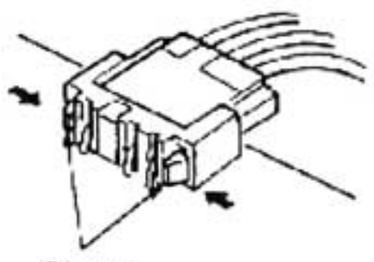
1. Replacement for the drive coil cover and drive coil ass'y

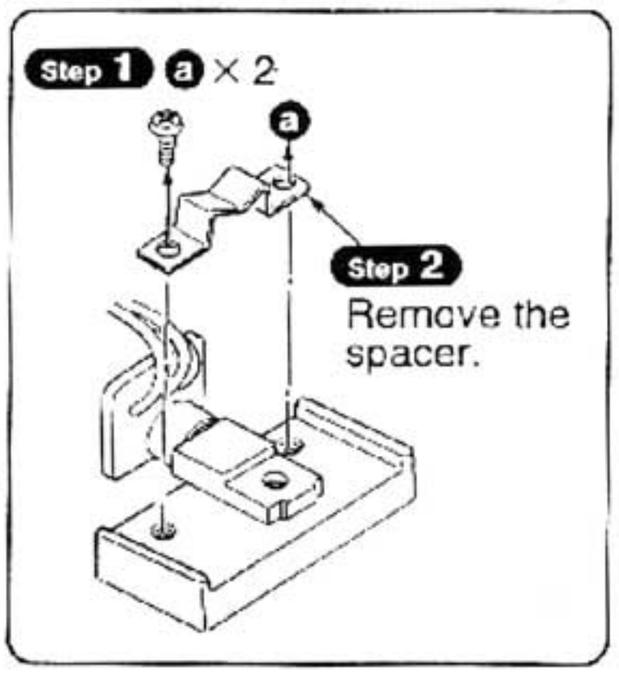
- Follow the **Step 1** – **Step 4** of the item 1 in checking procedure for each P.C.B. on page 10.



Removal of the connector

- Release the claws, and then pull out the connector.



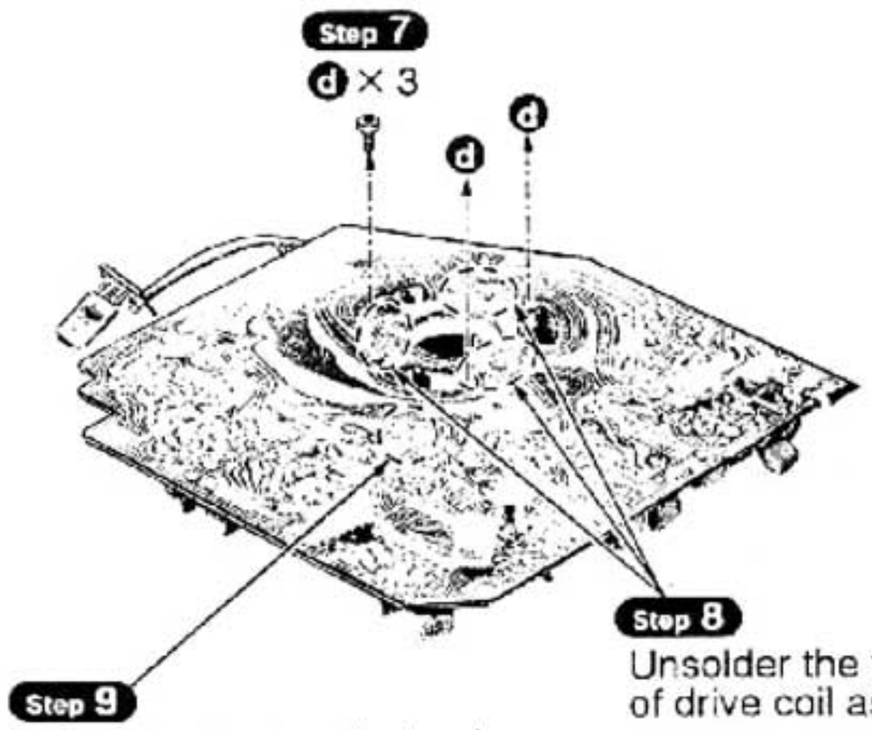


a
[XTB3+8J]

b
[SFXGQ20–02] (Black)

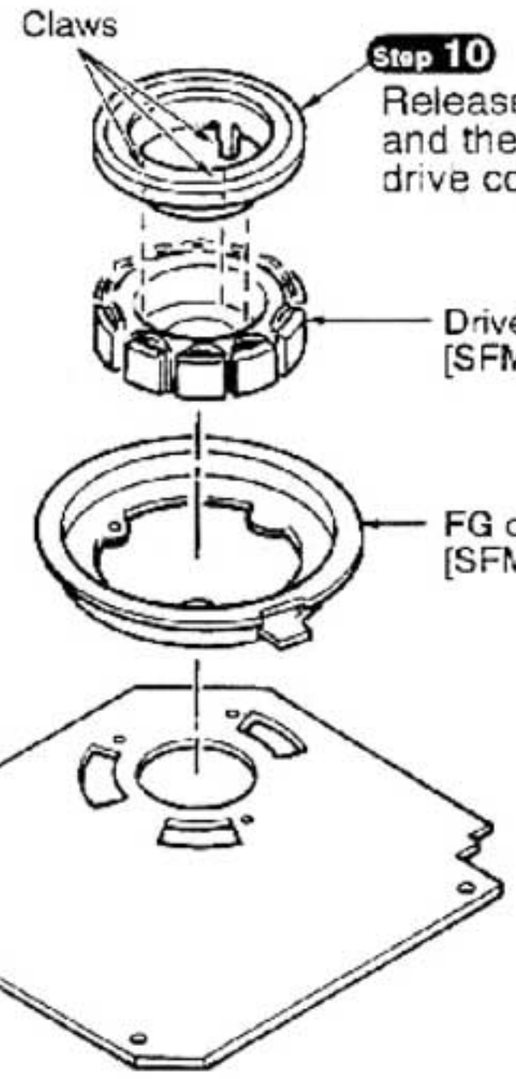
c
[XTW3+8T]

〔Foil side of drive control P.C.B.〕



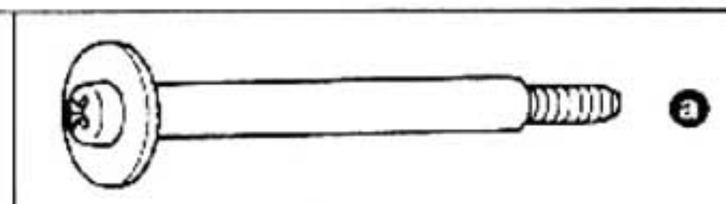
Step 8
Unsolder the terminals of drive coil ass'y (18 points).

Step 9
Unsolder the terminals of FG coil ass'y (4 points).

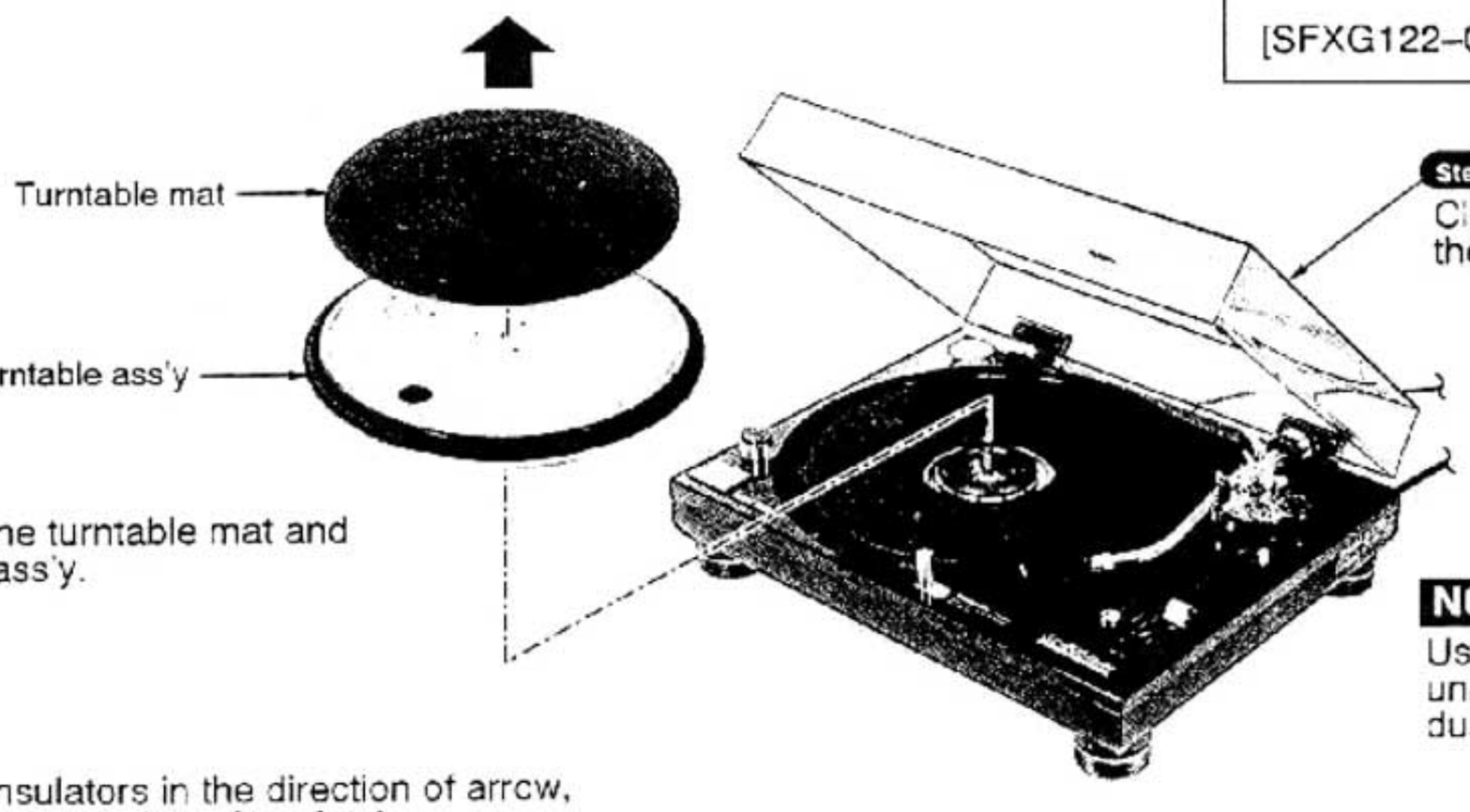

Claws
Step 10
Release the 3 claws, and then remove the drive coil cover.
Drive coil ass'y [SFMG520–31A]
FG coil ass'y [SFMZ172–01E]

d [XTN26+6J]

2. Replacement for the tonearm unit



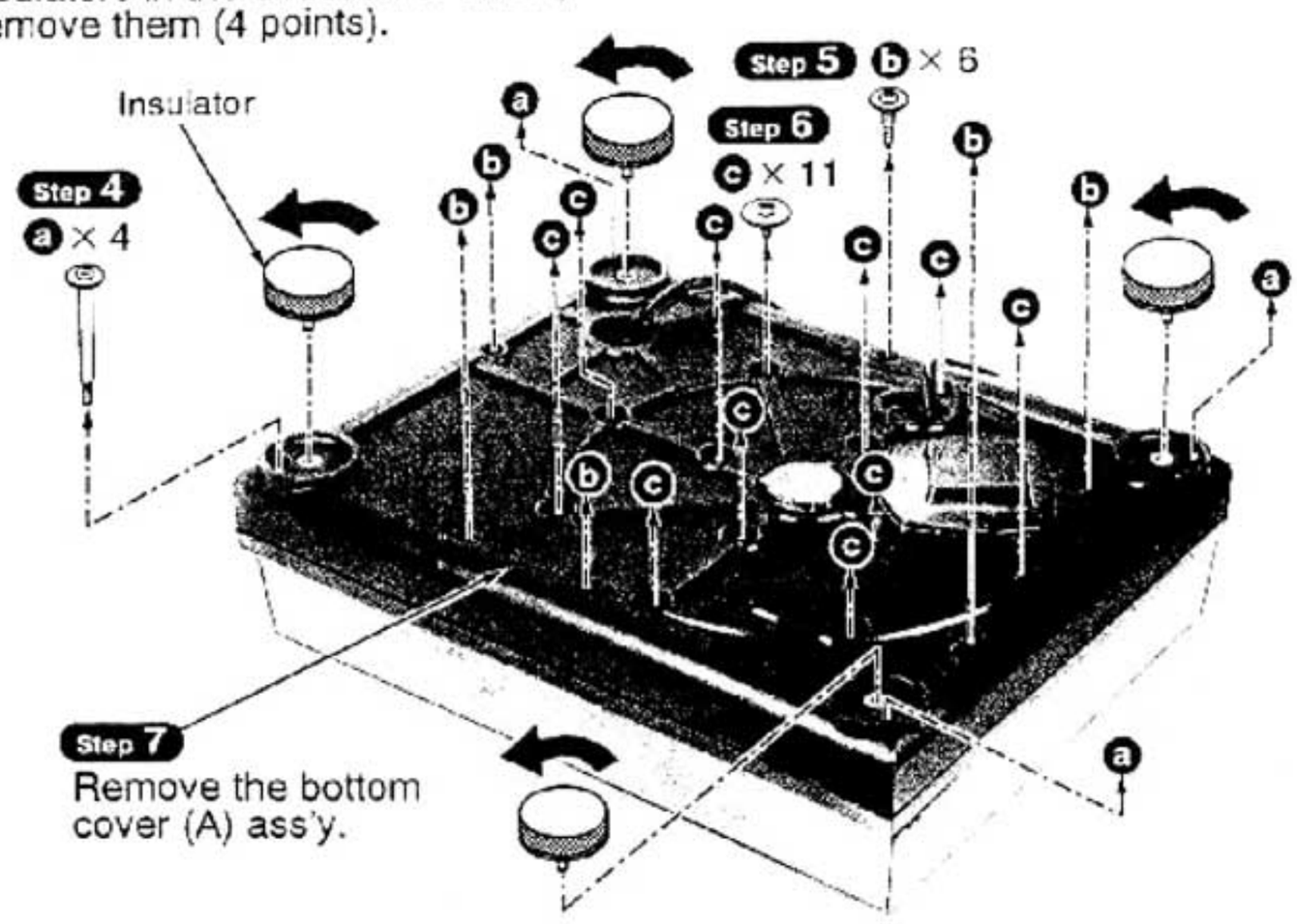
a [SFXG122–01]



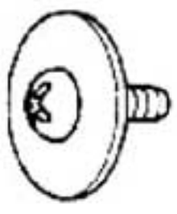
Step 1
Remove the turntable mat and turntable ass'y.

NOTE
Use the soft cloth under the unit to prevent damage the dust cover when servicing.

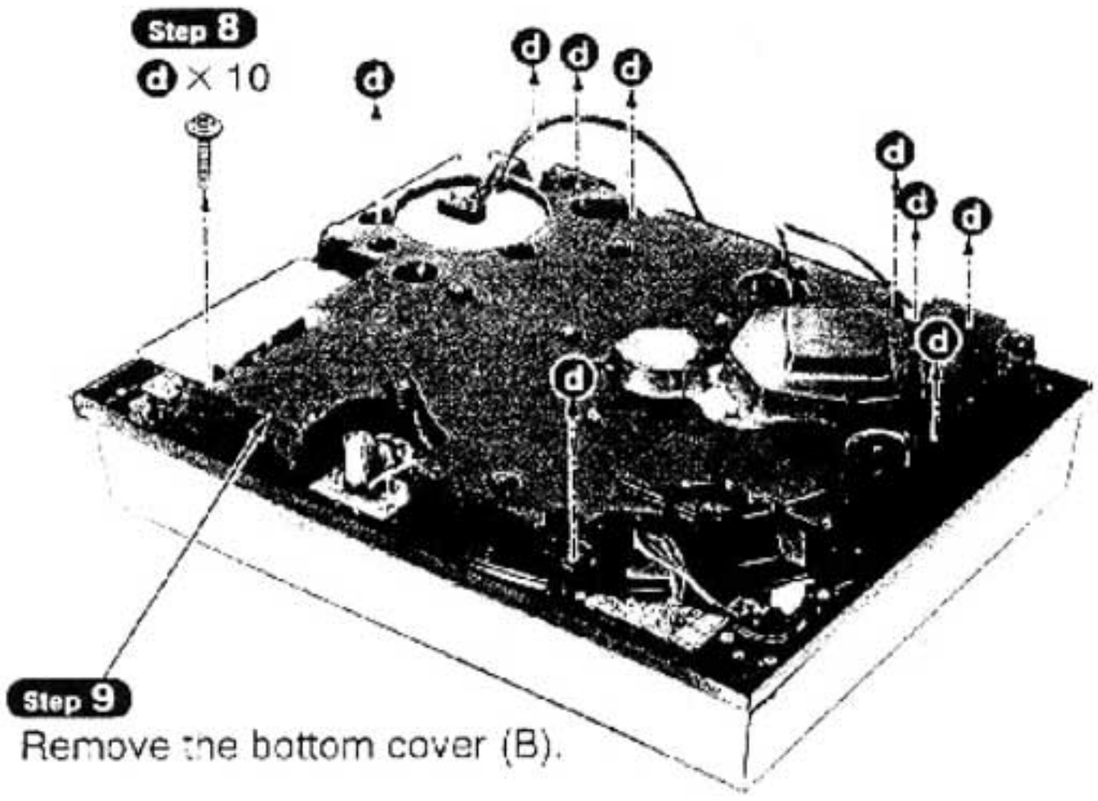
Step 3
Turn the insulators in the direction of arrow, and then remove them (4 points).



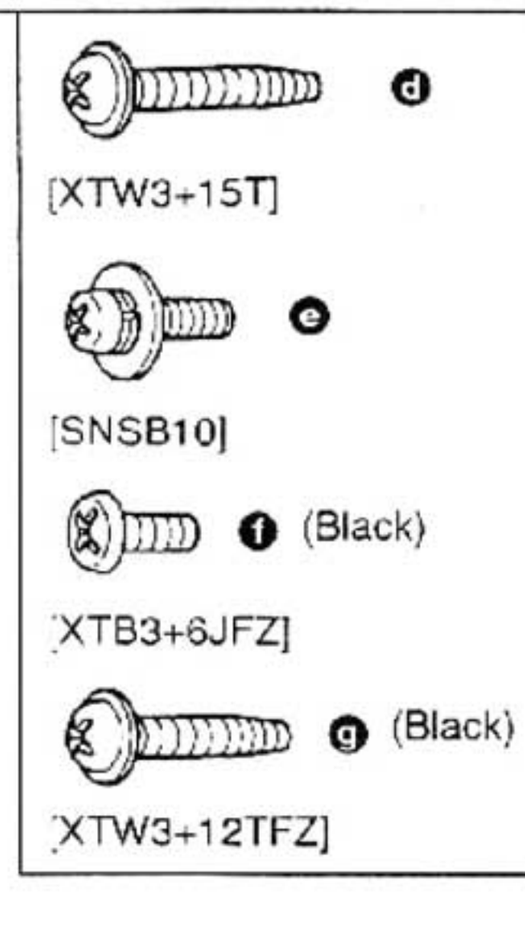
b (Black) [SNSB9]

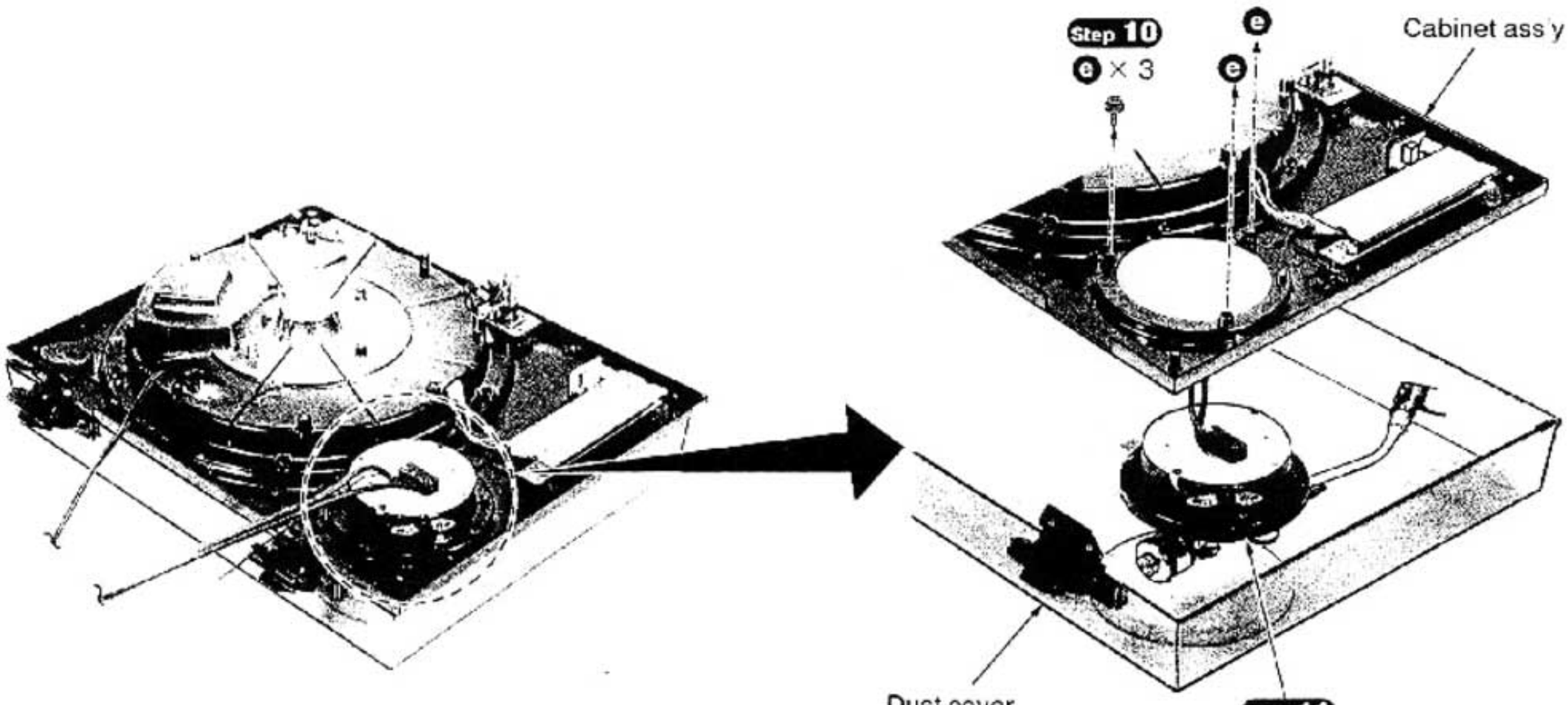


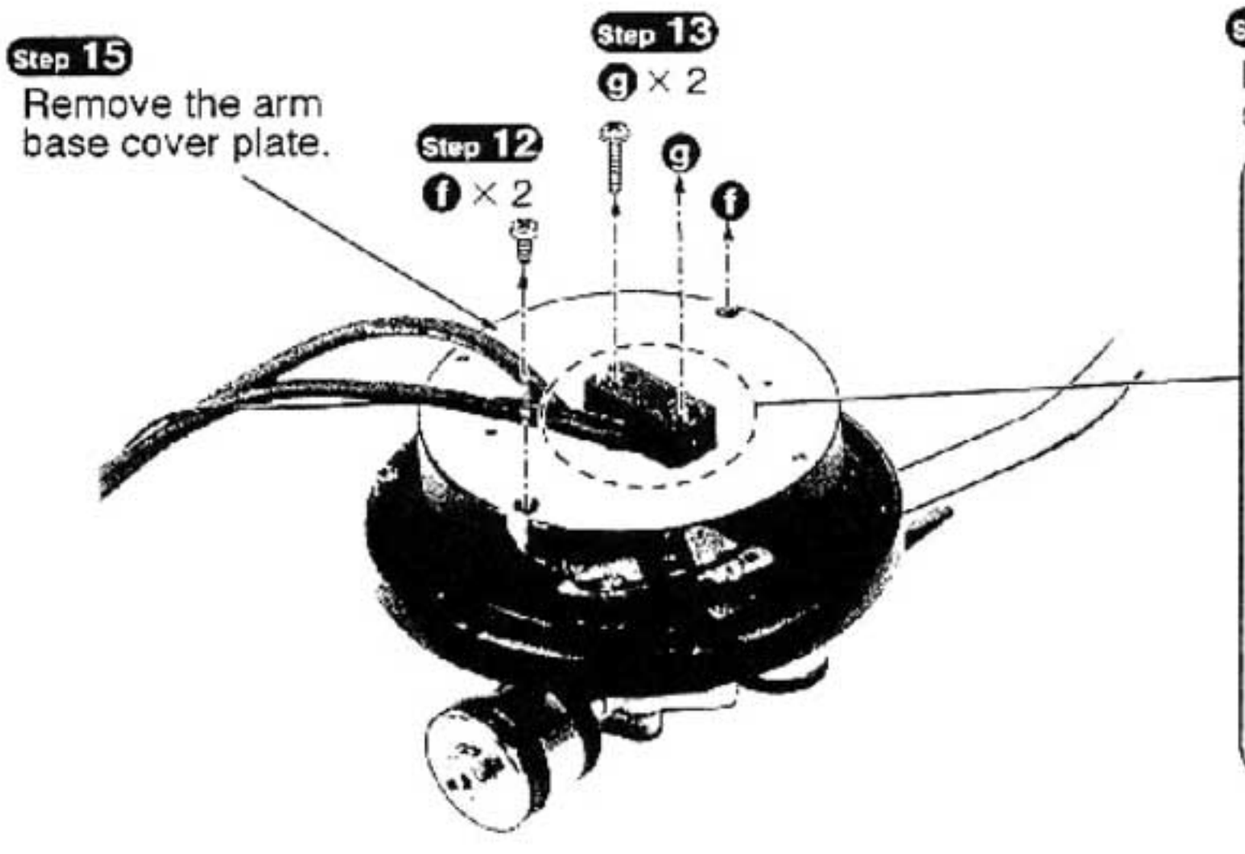
c (Black) [SFXG122–02]



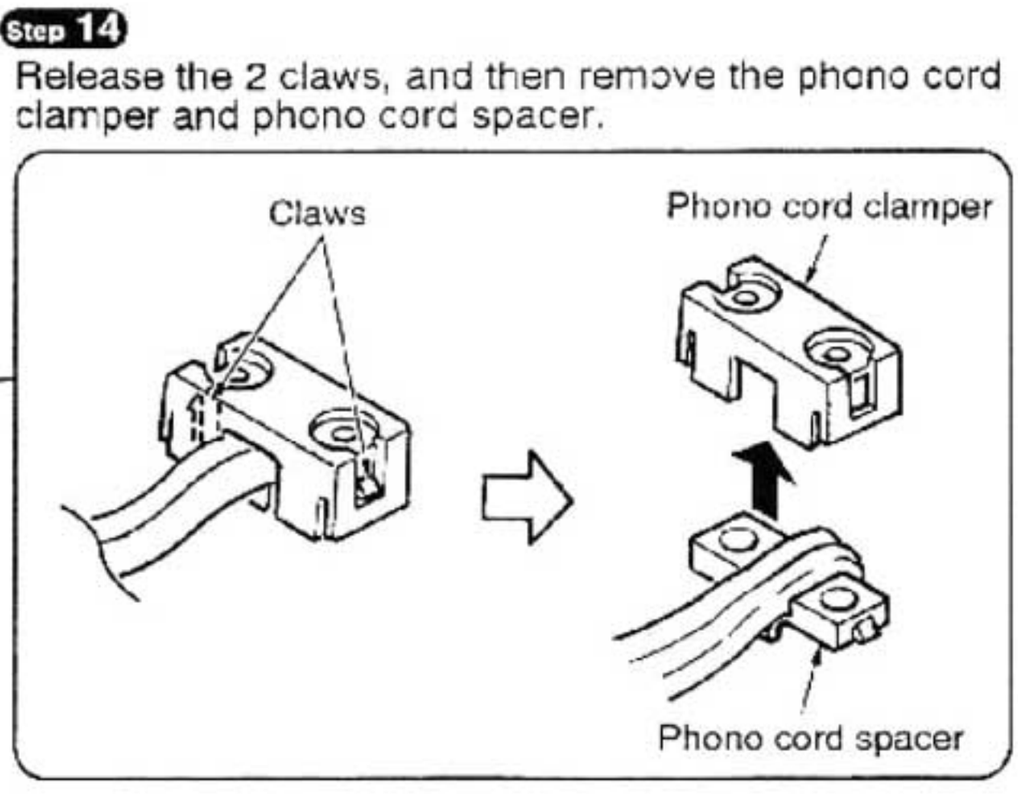
Step 9
Remove the bottom cover (B).







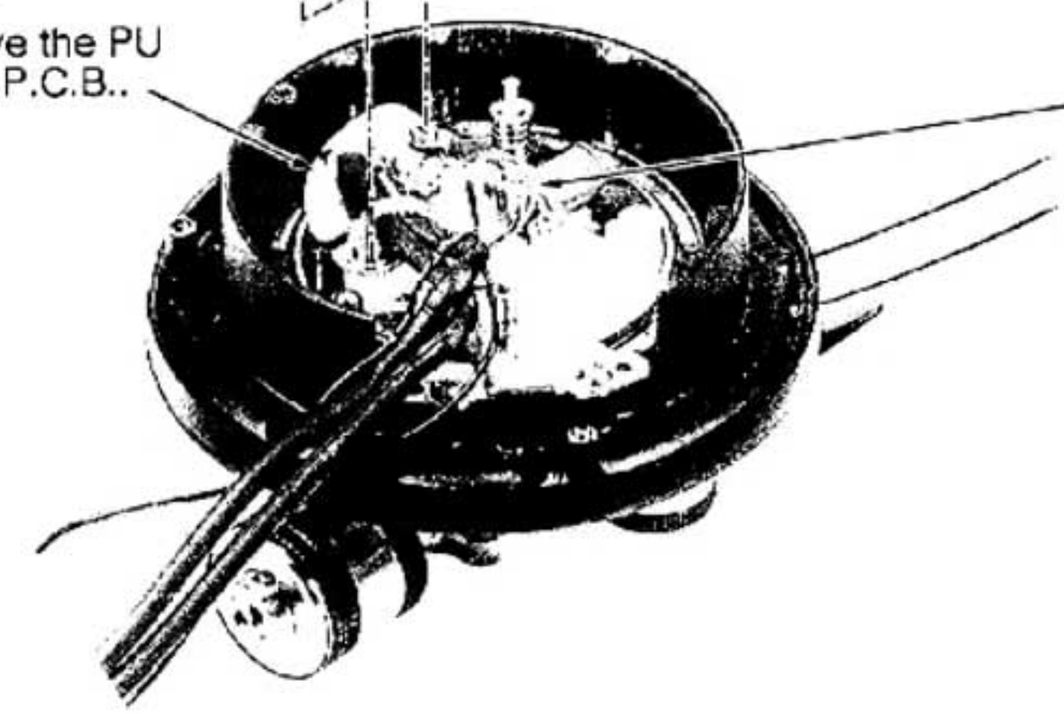
Step 14
Release the 2 claws, and then remove the phono cord clamper and phono cord spacer.



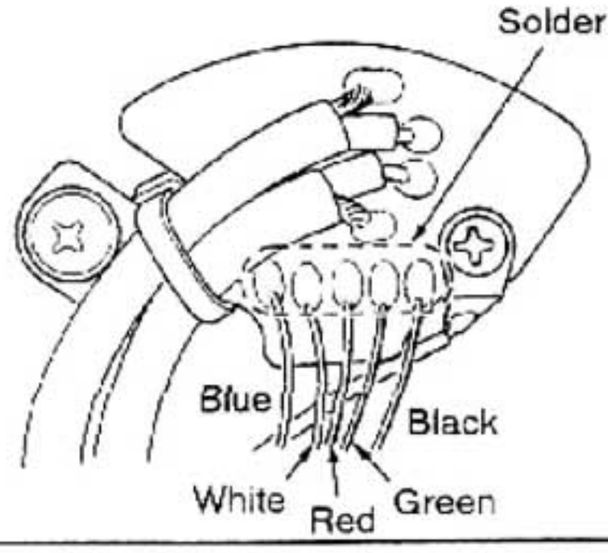
Step 17

Step 18

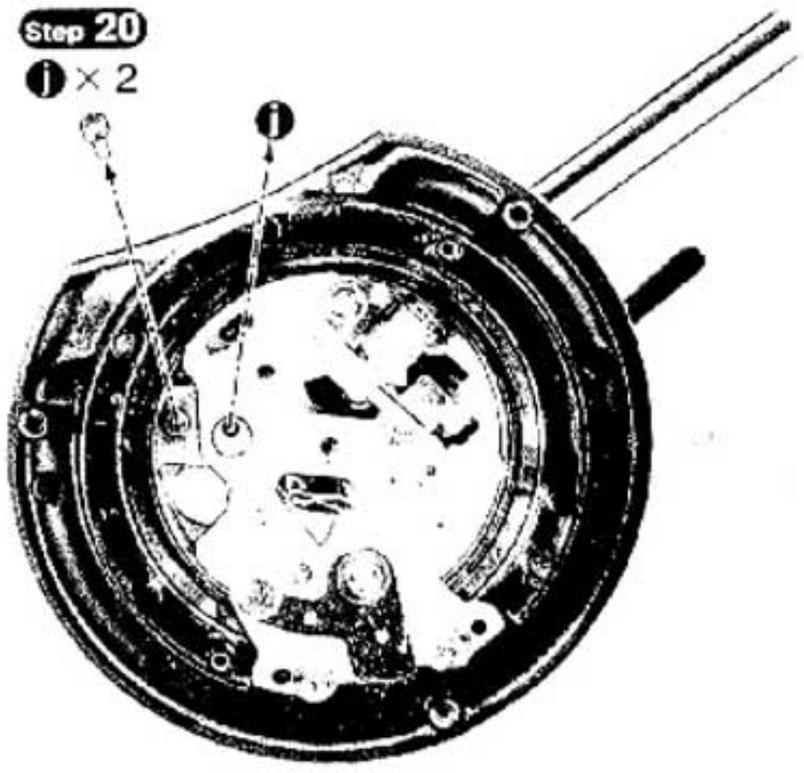
Step 19
Remove the PU output P.C.B..

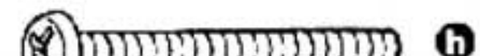


Step 16
Unsolder the terminals (5 points).

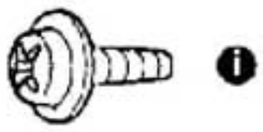


Step 20
j × 2




h

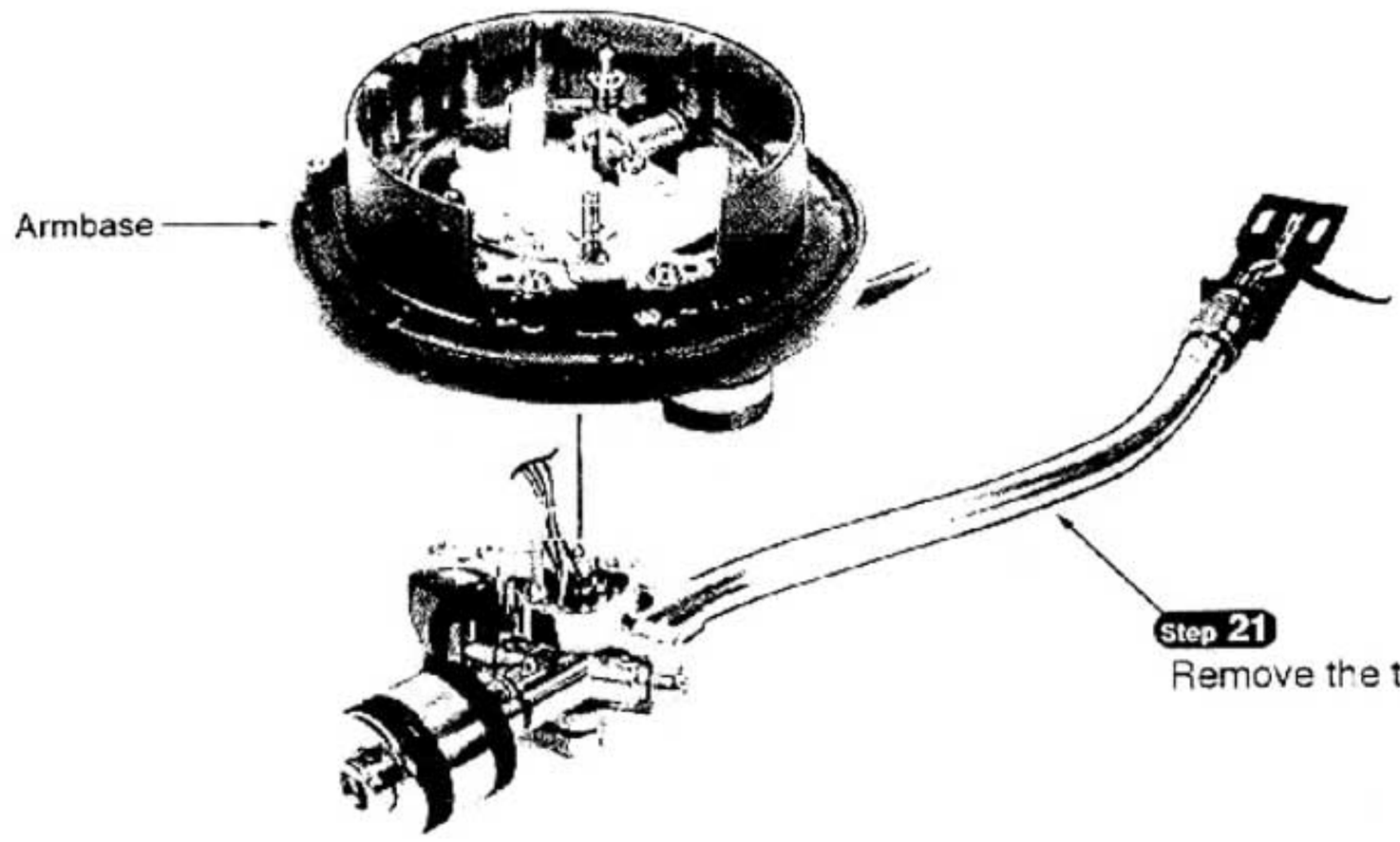
[XTN3+25J]


i

[XTW3+8T]

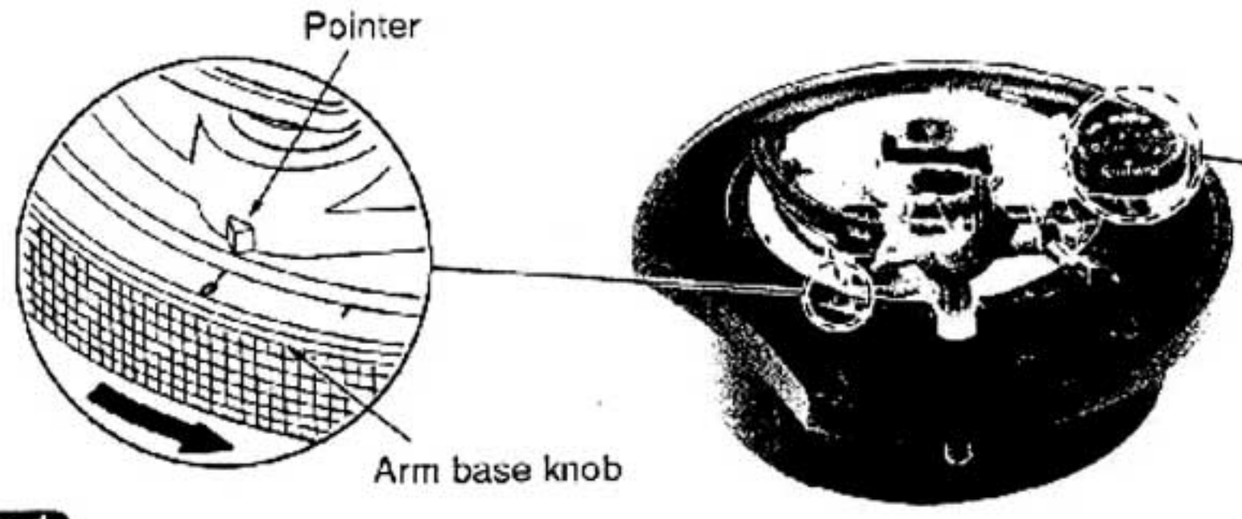
j

[XYN3+C10S]



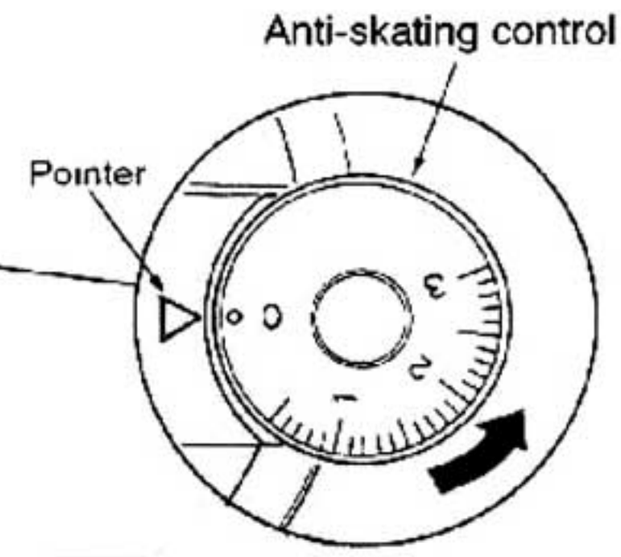
Step 21
Remove the tonearm unit.

Reassembly procedures for tonearm ass'y



Step 1

Rotate the arm base knob in the direction of arrow, and then align the pointer with the scale "0".



Step 2

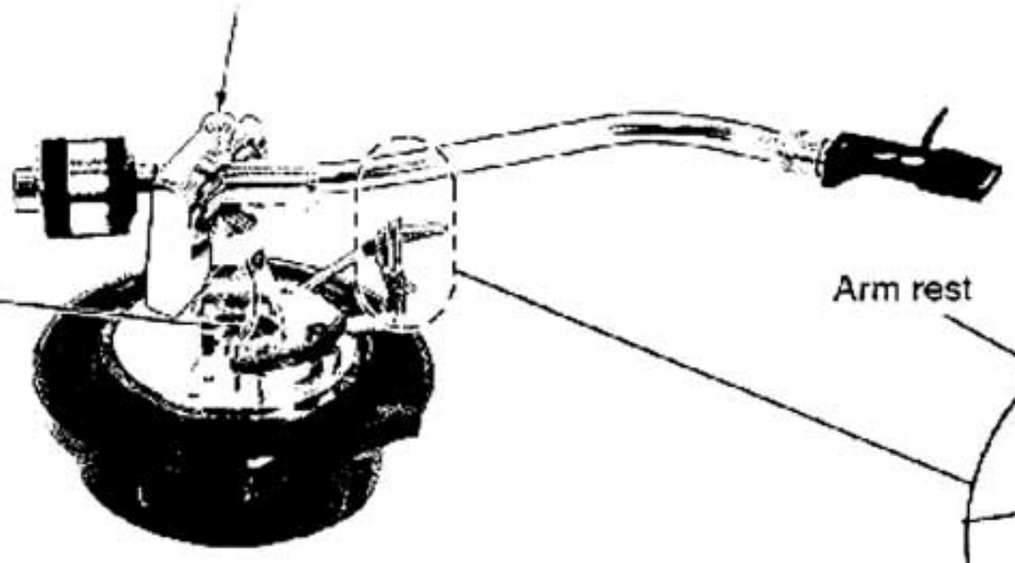
Rotate the Anti-skating control knob in the direction of arrow, and then align the pointer with the scale "0".

Step 3

Pass the 5 lead wires through the hole of arm base.

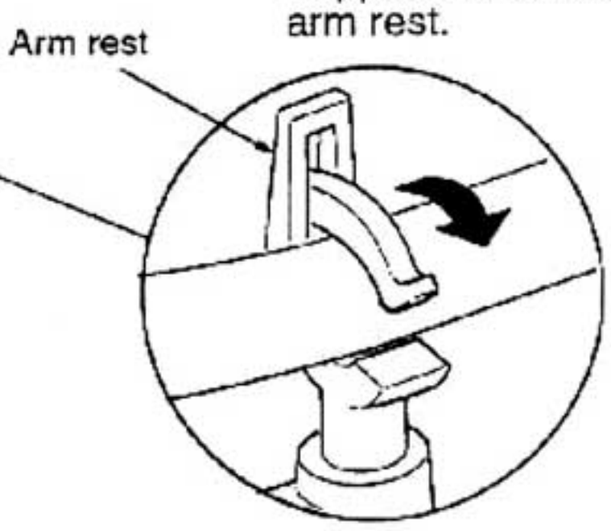
Step 4

Install the tonearm unit.



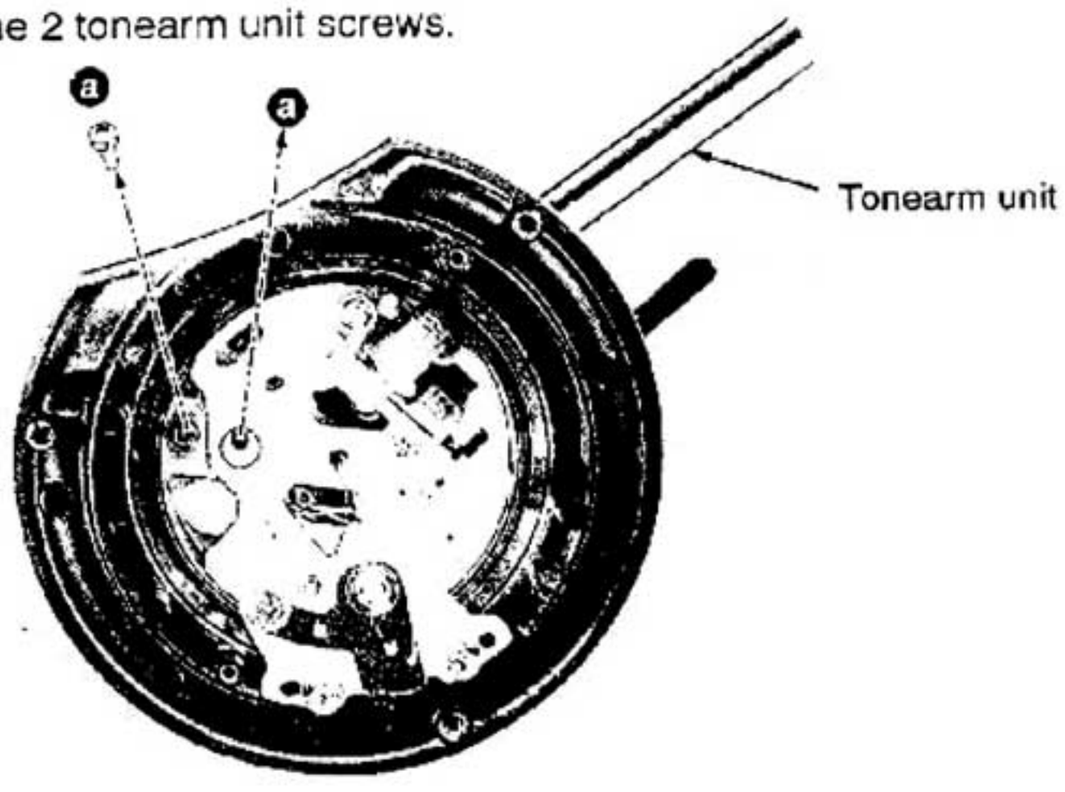
Step 5

Support the tonearm unit with arm rest.



Step 6

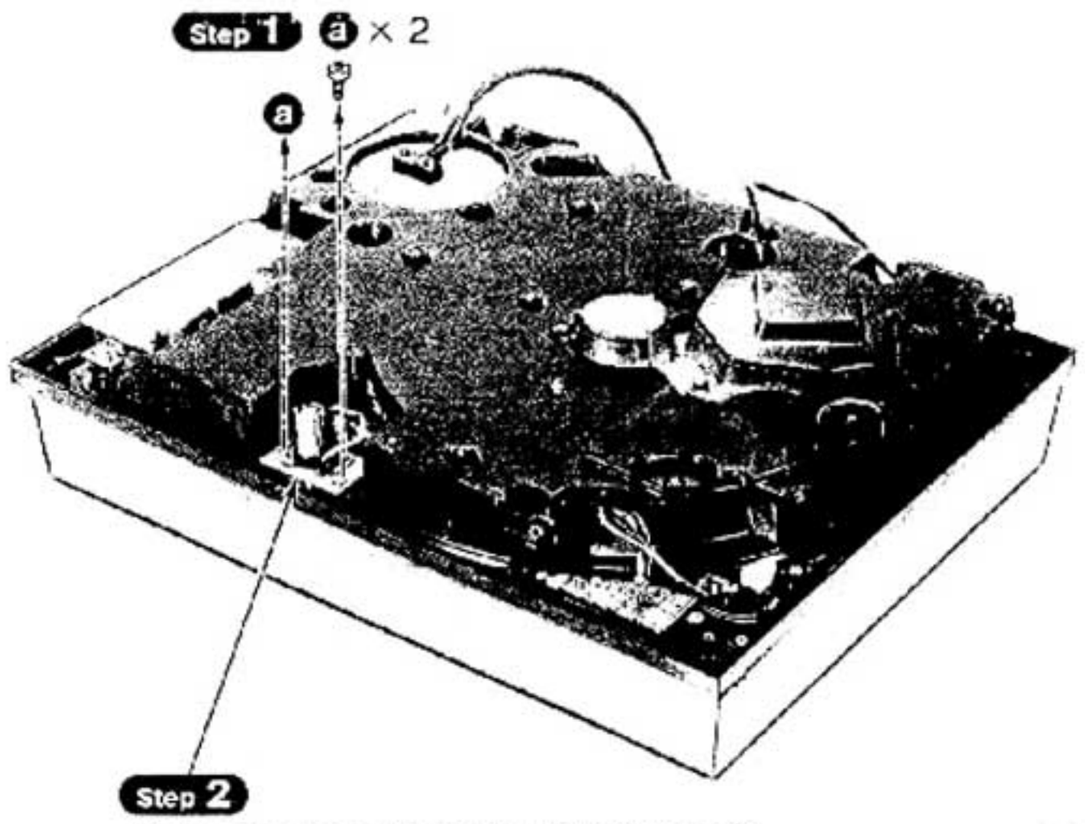
Tighten the 2 tonearm unit screws.

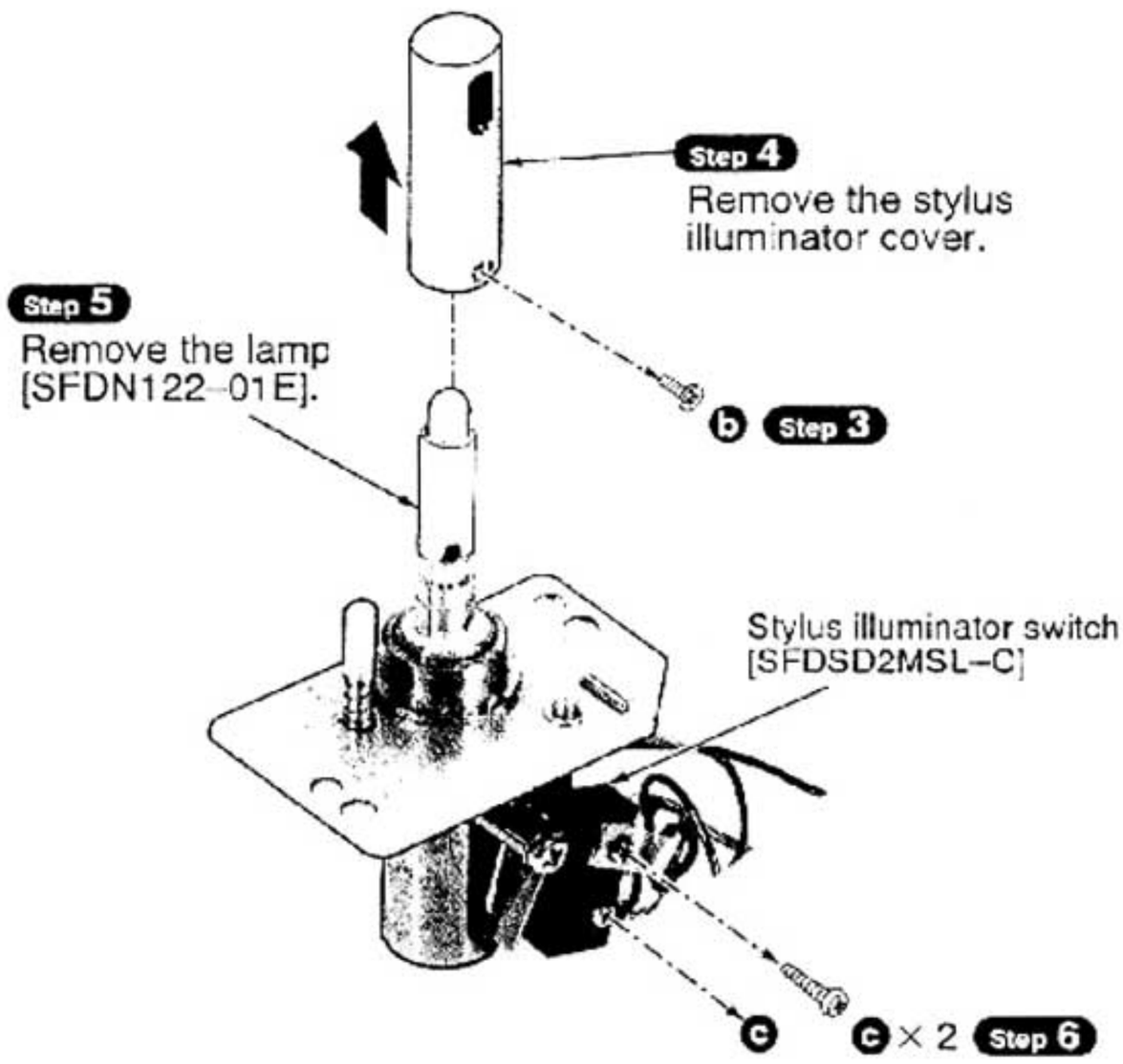


a [XYN3+C10S]

3. Replacement for the lamp and stylus illuminator switch

- Follow the Step 1 ~ Step 7 of the item 2 in main component replacement procedures on page 11.





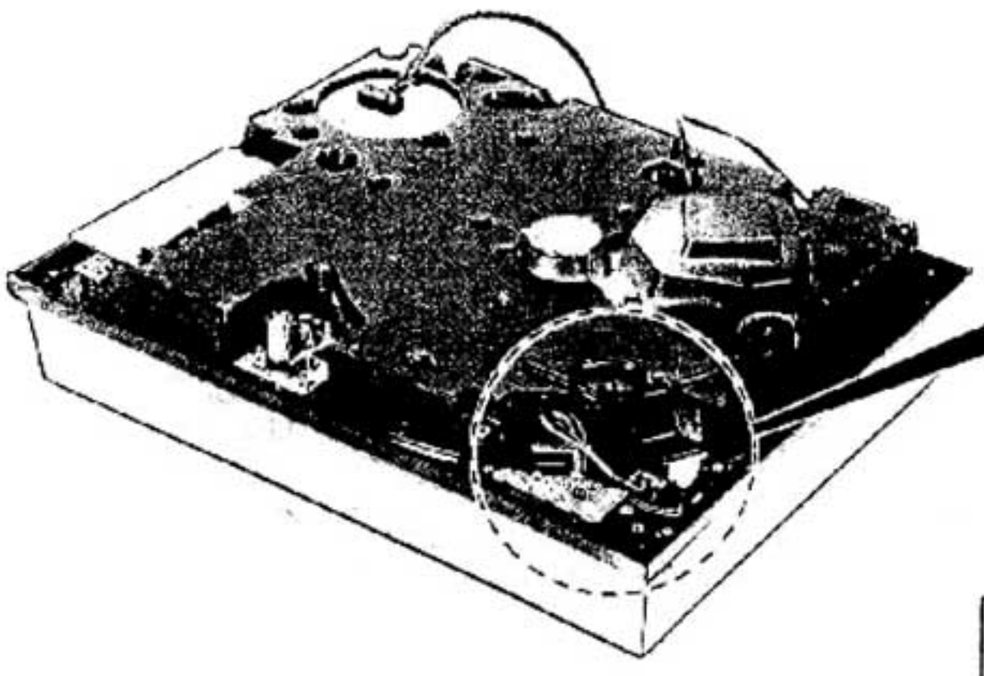
a [XTB3+8J]

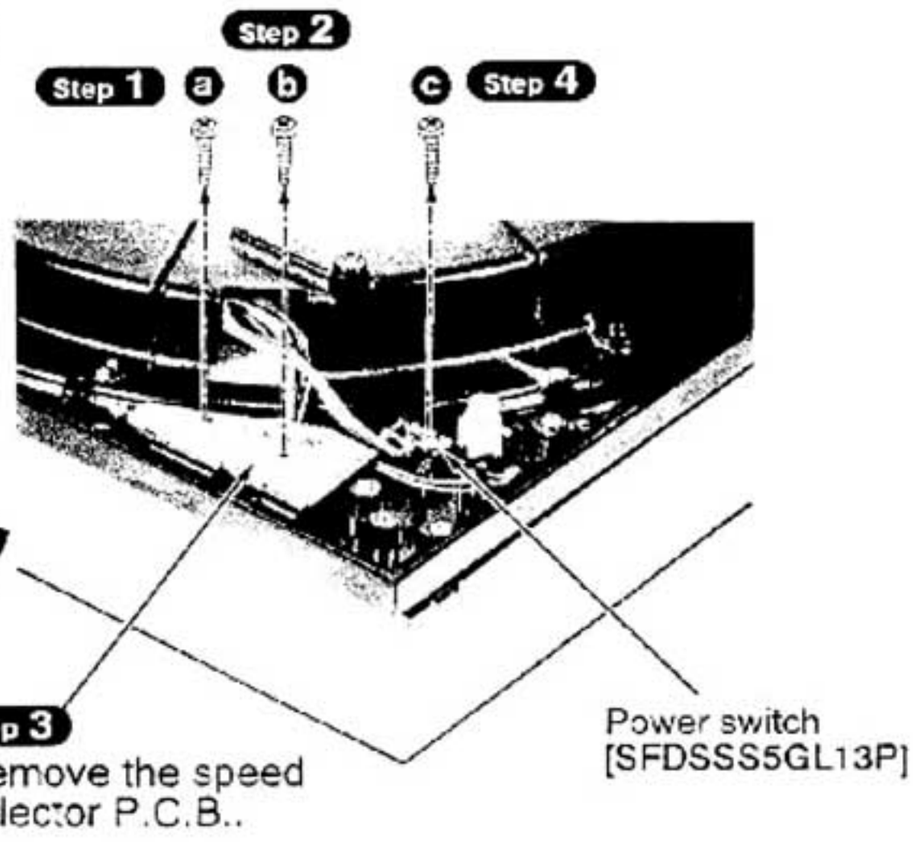
b [XSN17+3FY]

c [XSN2+10]

4. Replacement for the parts mounted on speed selector P.C.B. and power switch

- Follow the Step 1 ~ Step 7 of the item 2 in main component replacement procedures on page 11.



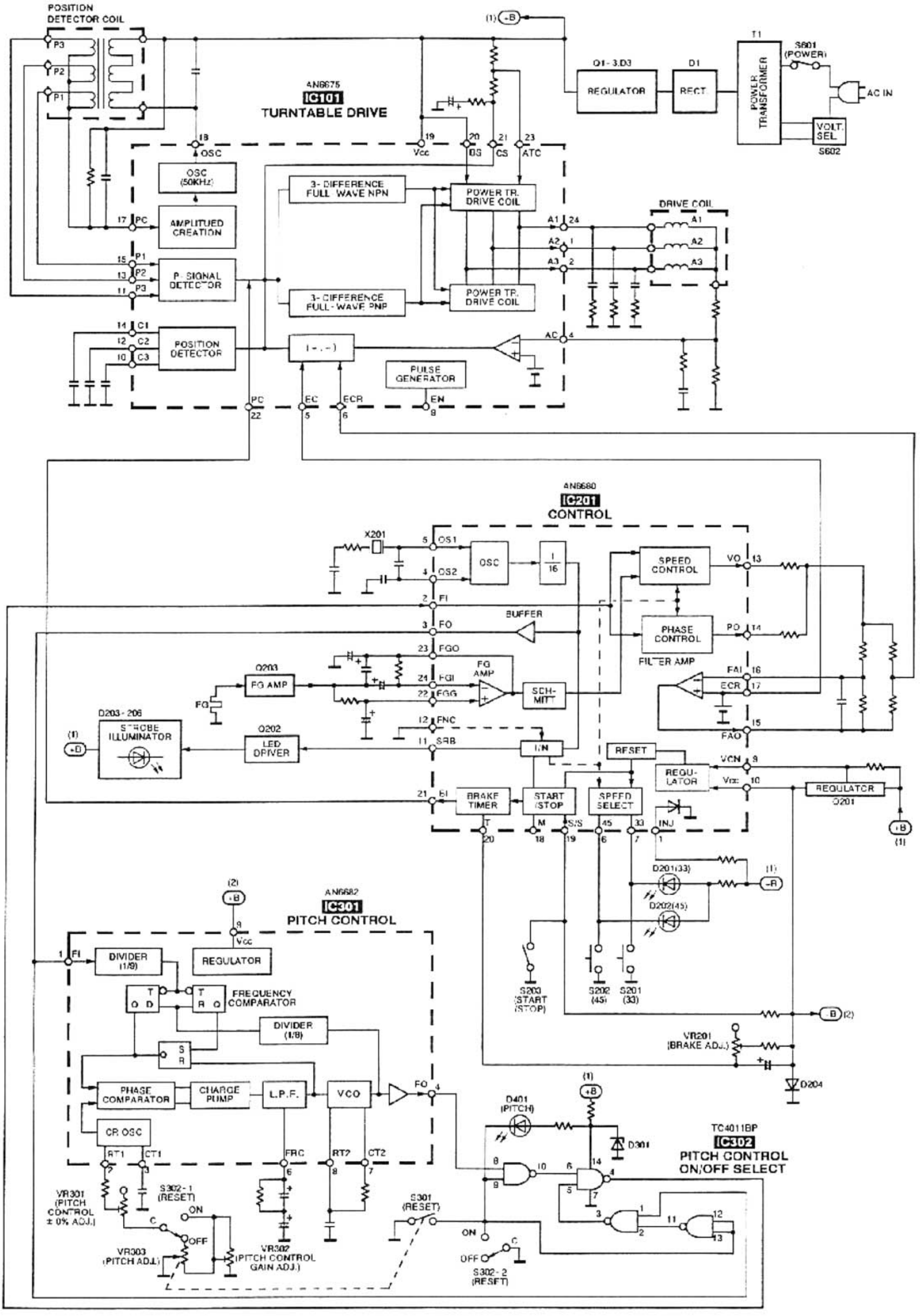


a [XTV3+8G]

b (Black) [XTB3-10JFZ]

c [XTV23-10G]

■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM

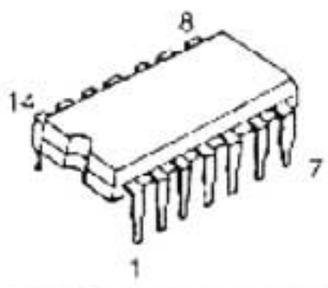
Note:
- ● S201 : SPEED SELECTOR (33 rpm) switch.
- ● S202 : SPEED SELECTOR (45 rpm) switch.
- ● S203 : START/STOP switch.
- ● S301 : PITCH CONTROL RESET switch in "OFF" position. (Interlocked with VR303)
- ● S302 : PITCH RESET switch in "OFF" position.
- ● S401 : STYLUS ILLUMINATOR switch in "ON" position.
- ● S601 : POWER switch in "ON" position.
- ● S602 : VOLTAGE SELECTOR switch.
- ● VR201 : BRAKE ADJUSTMENT VR.
- ● VR301 : PITCH CONTROL ± 0% ADJUSTMENT VR.
- ● VR302 : PITCH CONTROL GAIN ADJUSTMENT VR.
- ● VR303 : PITCH CONTROL ADJUSTMENT VR. (Interlocked with S301)
- ● The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high-impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
- ● Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
  NO MARK : Voltage when at a stop
  ( ) : Voltage during rotation
- ● ⟶ : +B Line
- ● The supply part number is described alone in the replacement parts.

Ref. No.	Production Part No.	Supply Part No.
Q1	2SD1265-0PQ	2SD1265-0
D204A	MA165TA	MA165

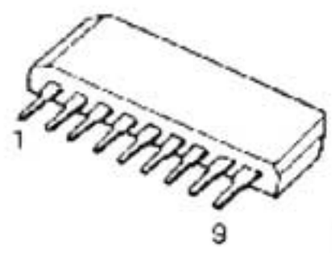
- ● This schematic diagram may be modified at any time with the development of new technology.

• Terminal guide of IC'S, transistors and diodes

TC4011BP



AN6682



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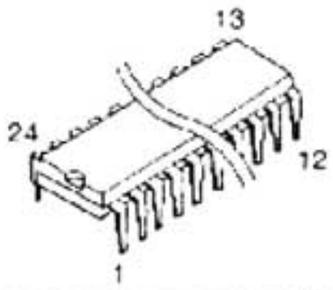

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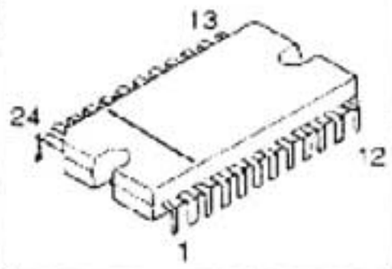
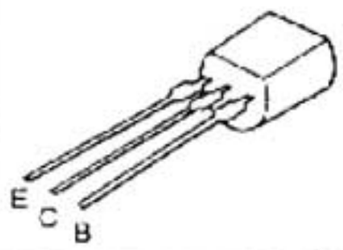
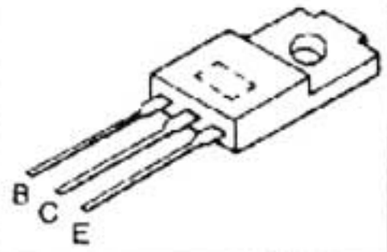


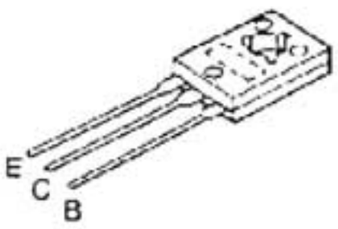
2SC2634-STU



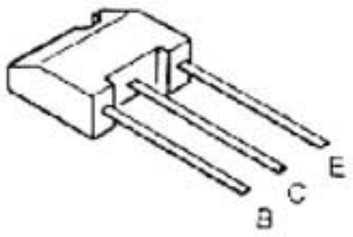
2SD1265-0PQ



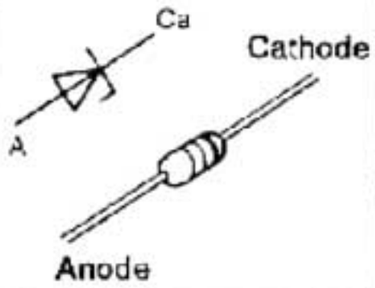
2SC1846-QRS



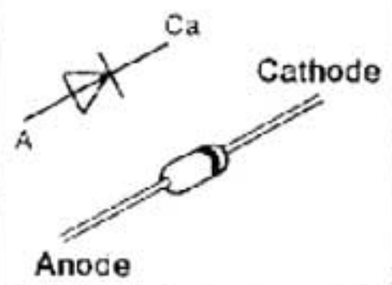
2SD637 QRS



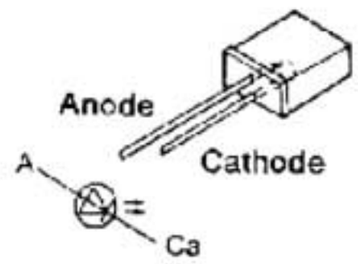
MA4051MTA



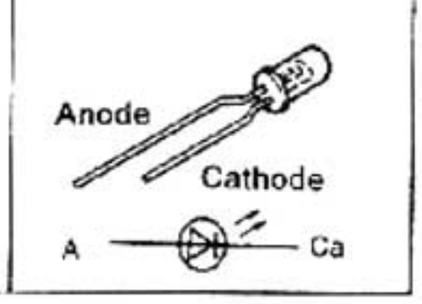
MA165TA



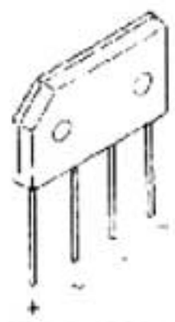
GL8EG21



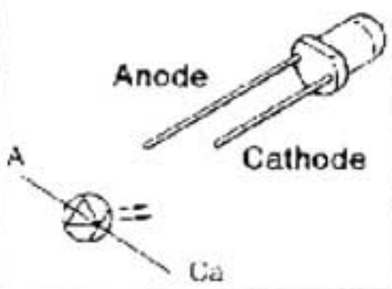
SVDEBR5505S



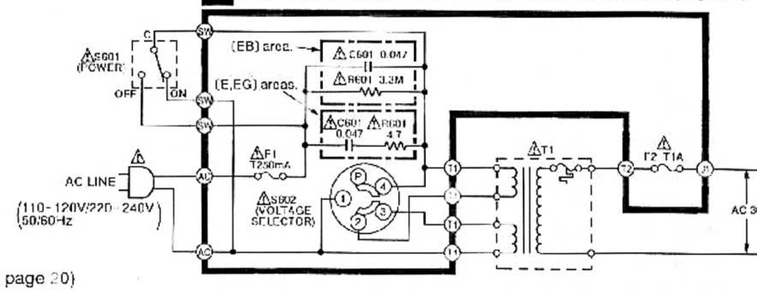
D2SBA20



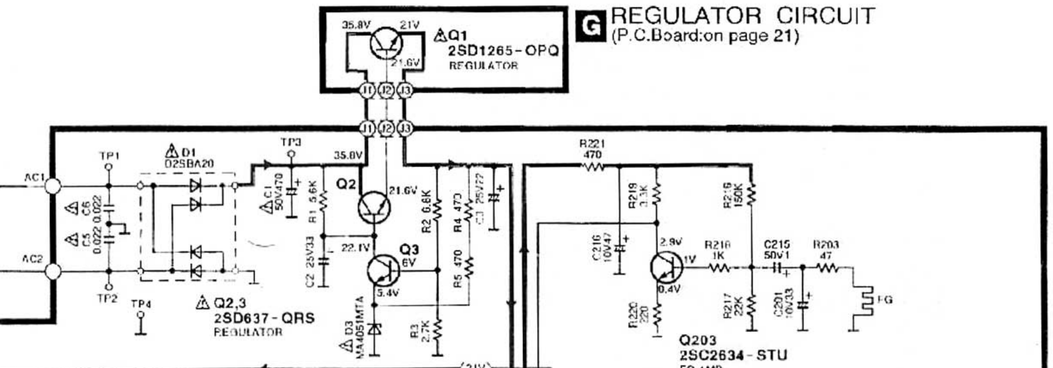
SVDPR3902S-9



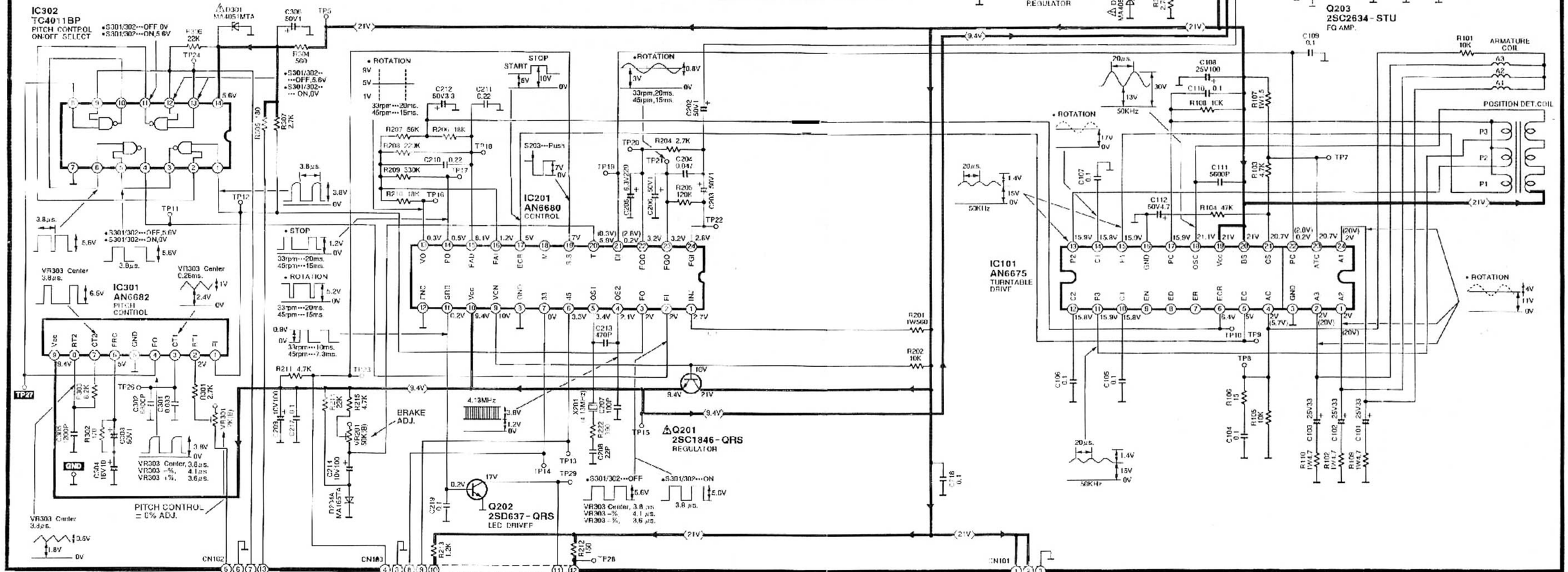
F POWER SUPPLY CIRCUIT (P.C.Board:on page 21)



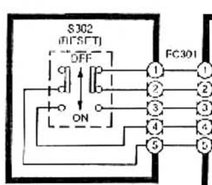
G REGULATOR CIRCUIT (P.C.Board:on page 21)



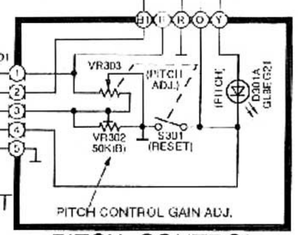
A DRIVE CIRCUIT (P.C.Board:on page 20)



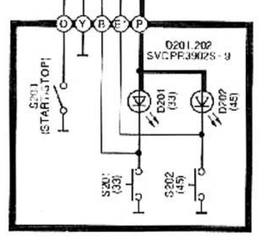
B PITCH RESET SWITCH CIRCUIT (P.C.Board: on page 21)



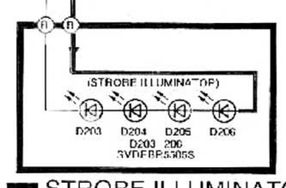
C PITCH CONTROL CIRCUIT (P.C.Board:on page 20)



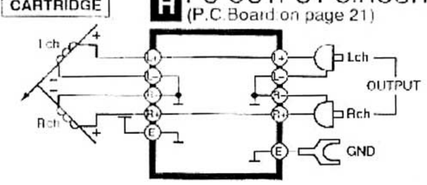
D SPEED SELECTOR CIRCUIT (P.C.Board:on page 21)



E STROBE ILLUMINATOR CIRCUIT (P.C.Board:on page 21)

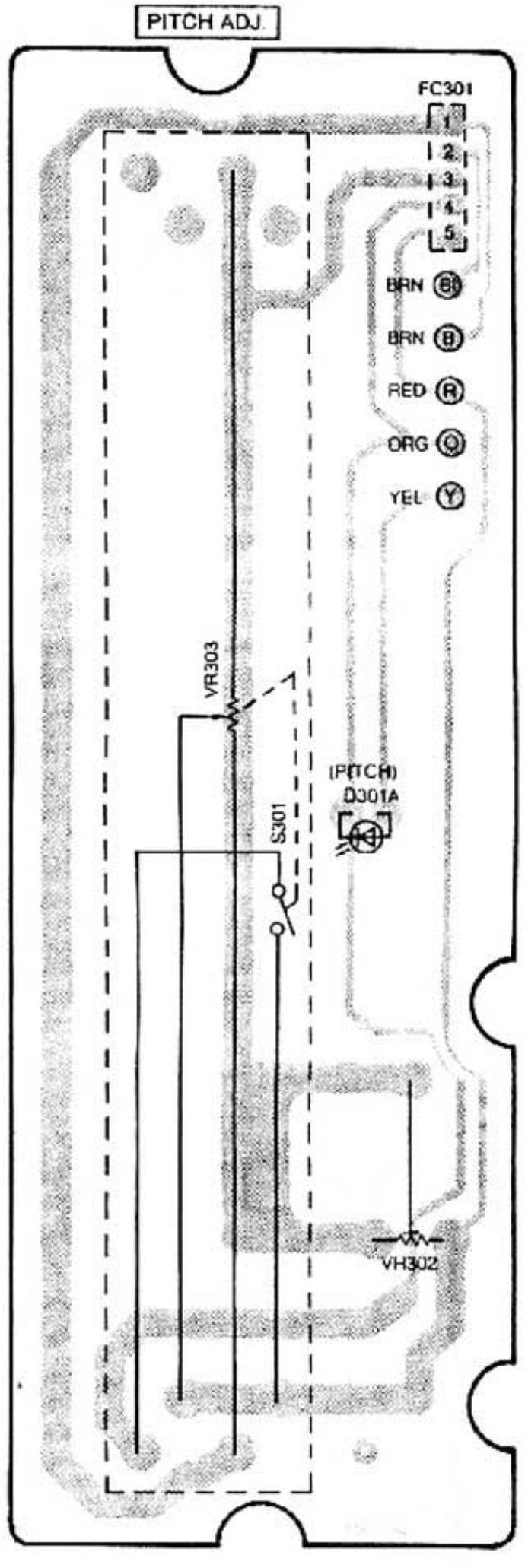


H PU OUTPUT CIRCUIT (P.C.Board on page 21)

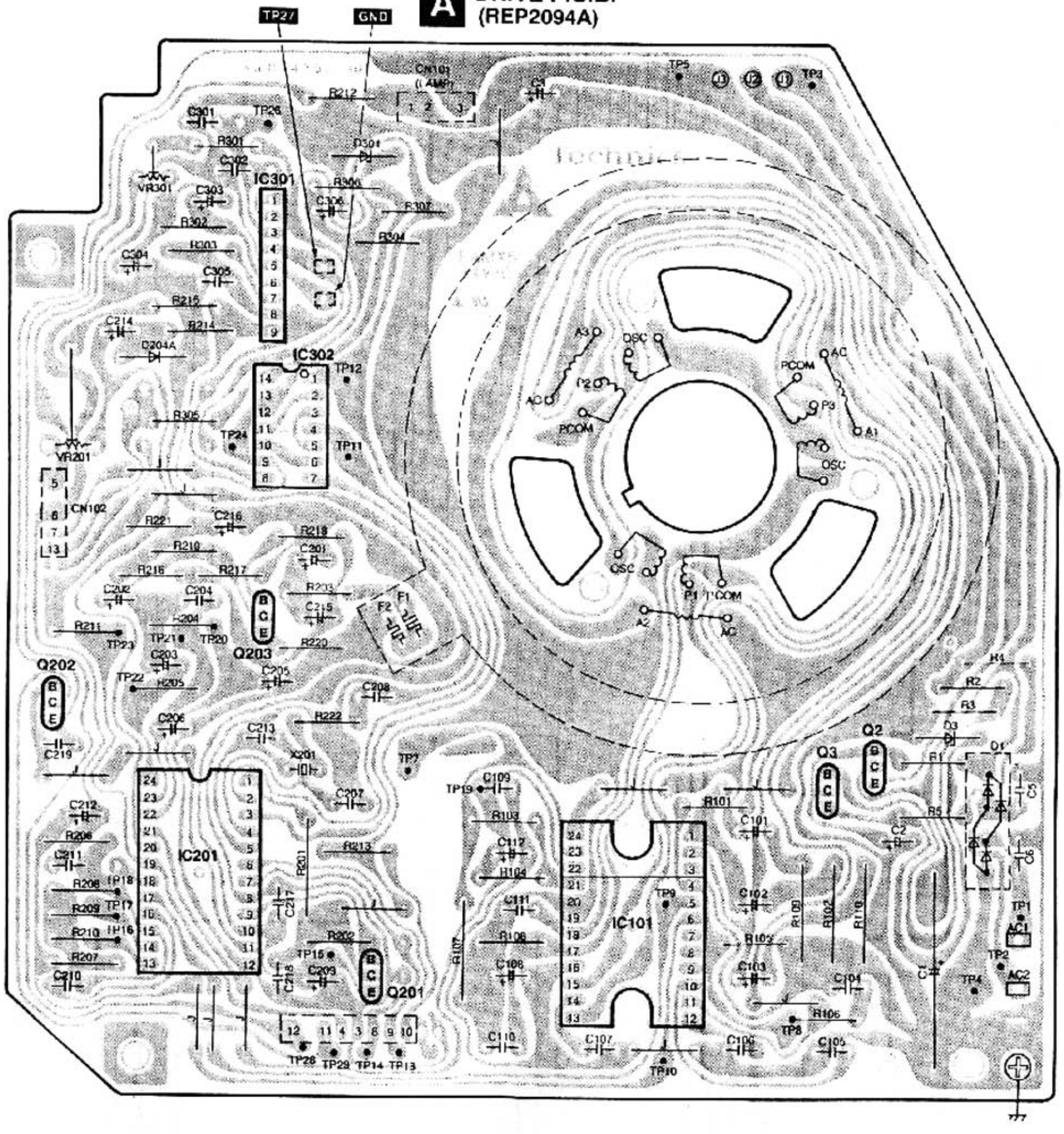


■ PRINTED CIRCUIT BORDS

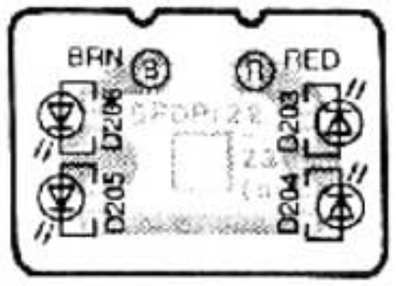
C PITCH CONTROL P.C.B. (REP2221A)



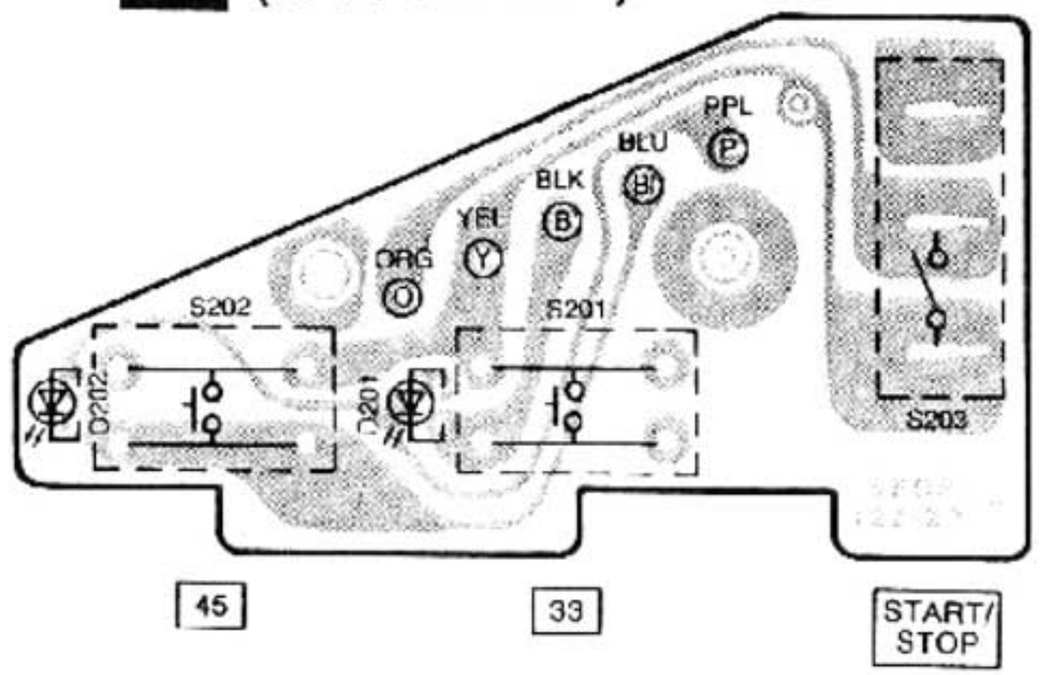
A DRIVE P.C.B. (REP2094A)



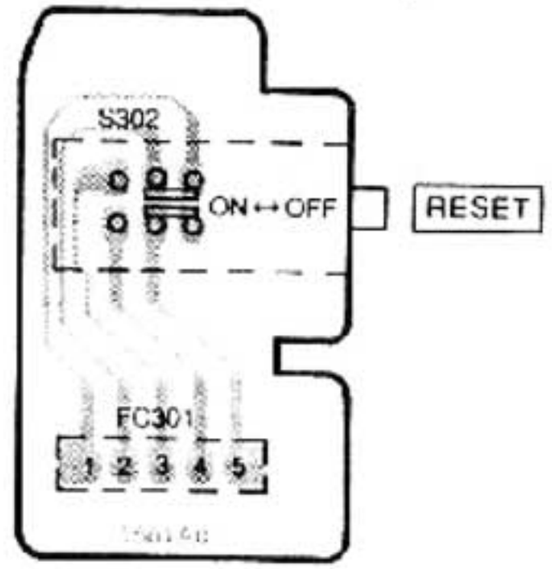
E STROBE ILLUMINATOR P.C.B. (SFDP122N12A)



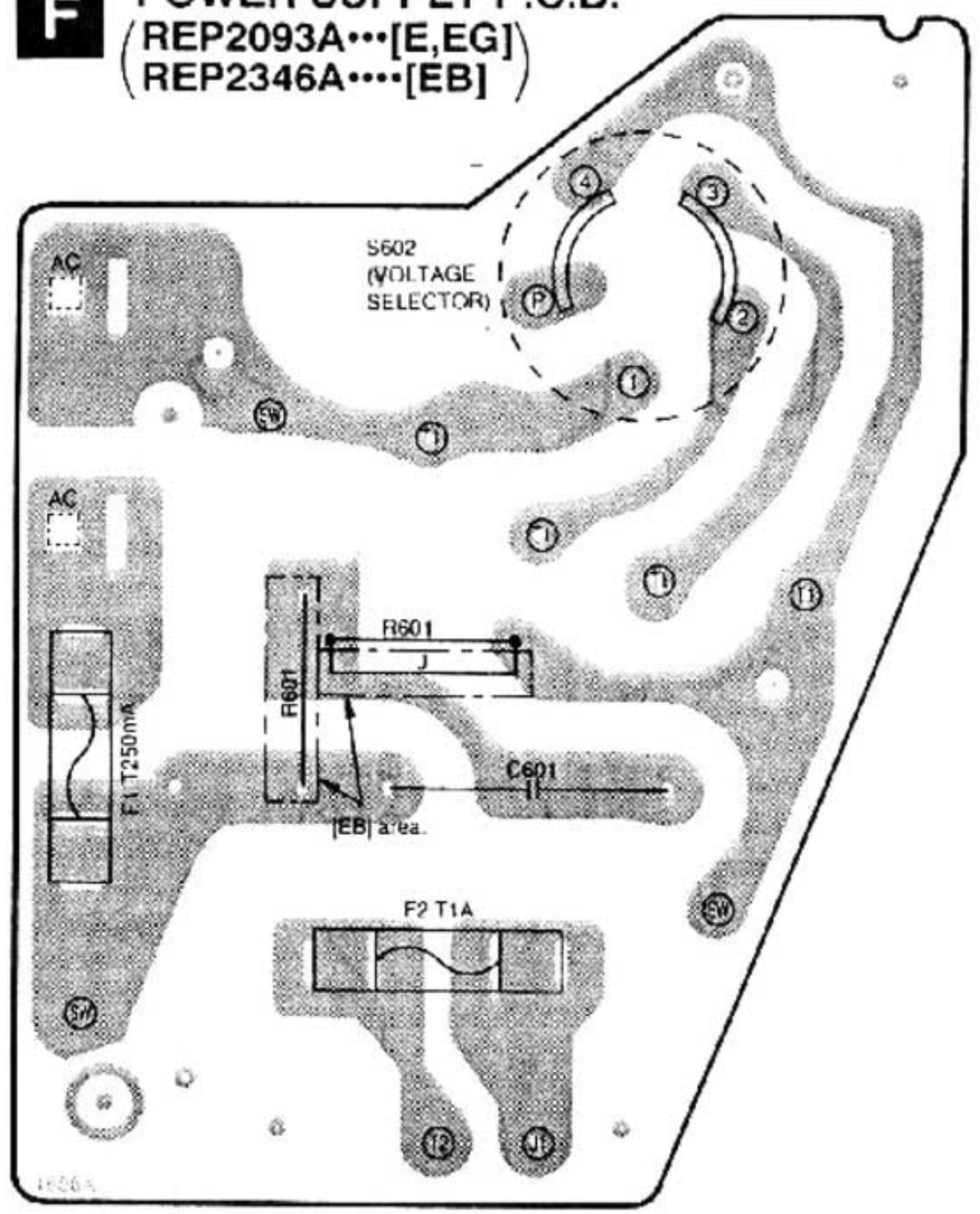
D SPEED SELECTOR P.C.B. (SFDP122N12A)



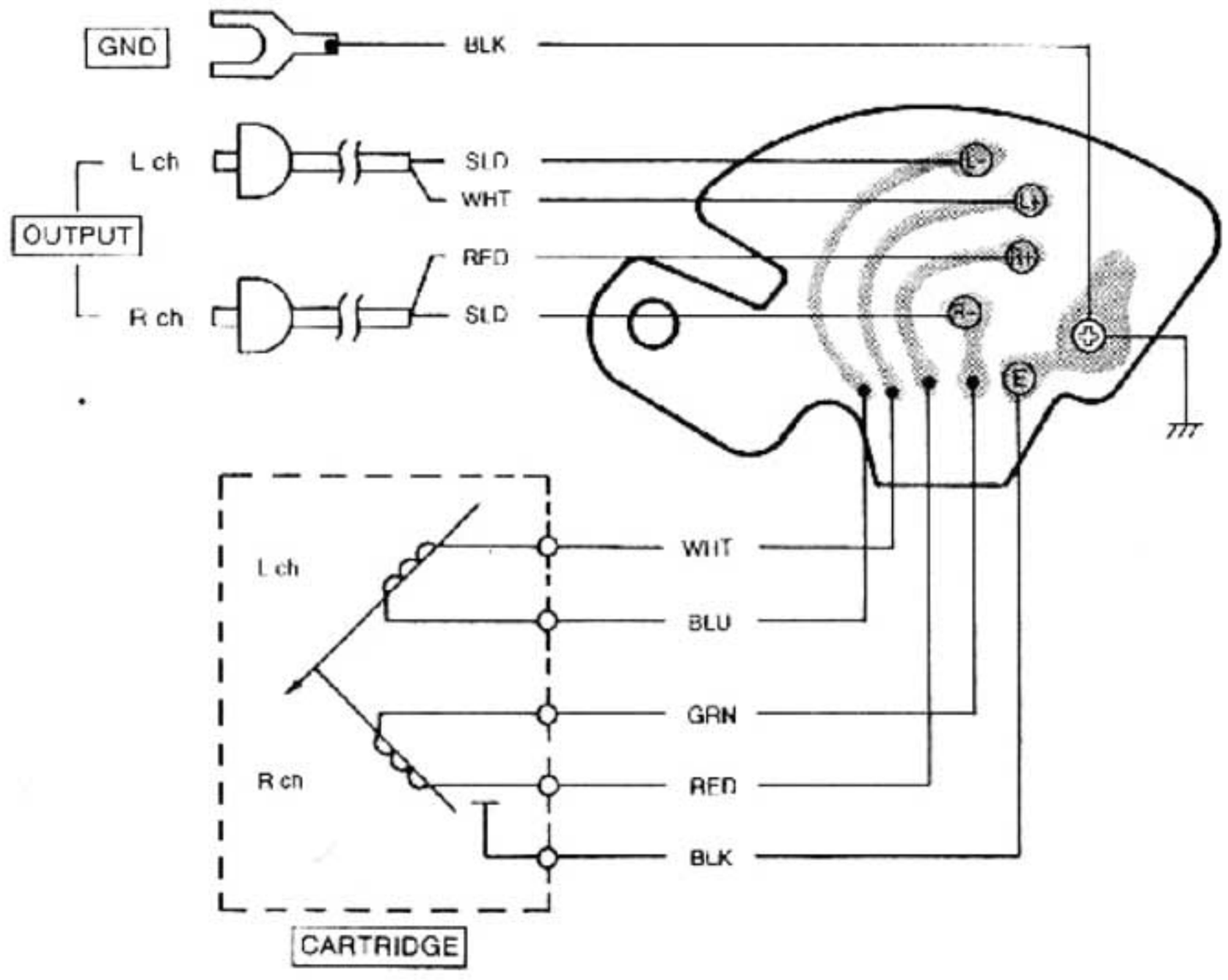
B PITCH RESET SWITCH P.C.B. (REP2221A)



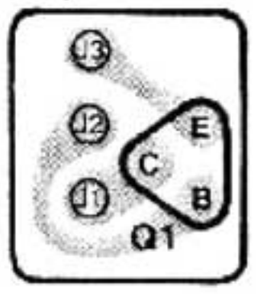
F POWER SUPPLY P.C.B. (REP2093A···[E,EG]) (REP2346A····[EB])



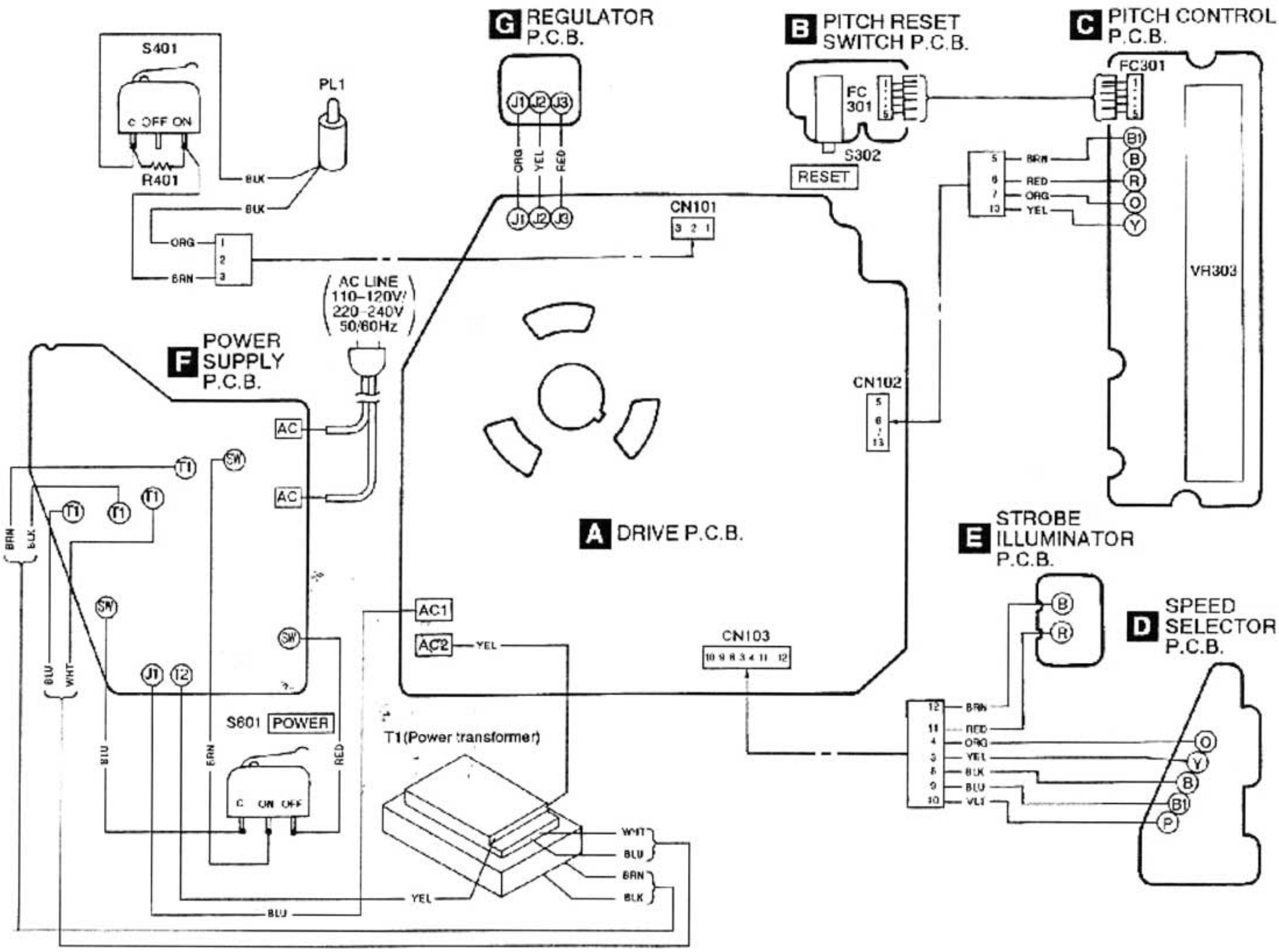
H PU OUTPUT P.C.B. (Except CARTRIDGE) (SFDH122–04E)



G REGULATOR P.C.B. (REP2094A)



■ WIRING CONNECTION DIAGRAM



Note:

BLK	Black	RED	Red
BLU	Blue	VLT	Violet
BRN	Brown	YEL	Yellow
ORG	Orange		

■ MEASUREMENTS AND ADJUSTMENTS

Notes: ● Make the following adjustments after replacing parts such as IC's, transistors, diodes, etc.

● Condition of the set.

1. Power switch ····· ON
2. Pitch control ····· Center position
3. Speed selector switch ····· 33 r.p.m.

● Instruments to be used

1. Tester
2. Frequency counter

	Adjustment	Connection	Parts adjusted	Procedure
1	Pitch control ± 0% adjustment	Frequency counter (+) — TP27 (−) — Earth point	VR301 (Fig. 1)	1. Connect the frequency counter and turn the power supply ON. 2. Set the pitch control knob to "0". (Indicator lights up.) 3. Adjust VR301 so that the frequency is 262.08 kHz ± 0.05 kHz.
2	Pitch control gain adjustment	Tester (+) — CN102 terminal ⑤ (−) — CN102 terminal ⑥	VR302 (Fig. 2)	1. Set the pitch control knob to "0". 2. Pull out the connector CN102 of drive P.C.B. 3. Connect the tester to terminals, ⑤ and ⑥ of connector CN102 on the pitch control P.C.B. side. 4. Adjust VR302 so that the resistance value of the tester is 2.85 k Ω ~ 2.90k Ω .
3	Brake adjustment	———	VR201 (Fig. 1)	1. Adjust VR201 so that the rotation at 33 r.p.m. stops within the angle of 30° ~ 210° after depressing the stop position.

■ ALIGNMENT POINTS

Please refer to Printed Circuit Board Diagram for test point locations.

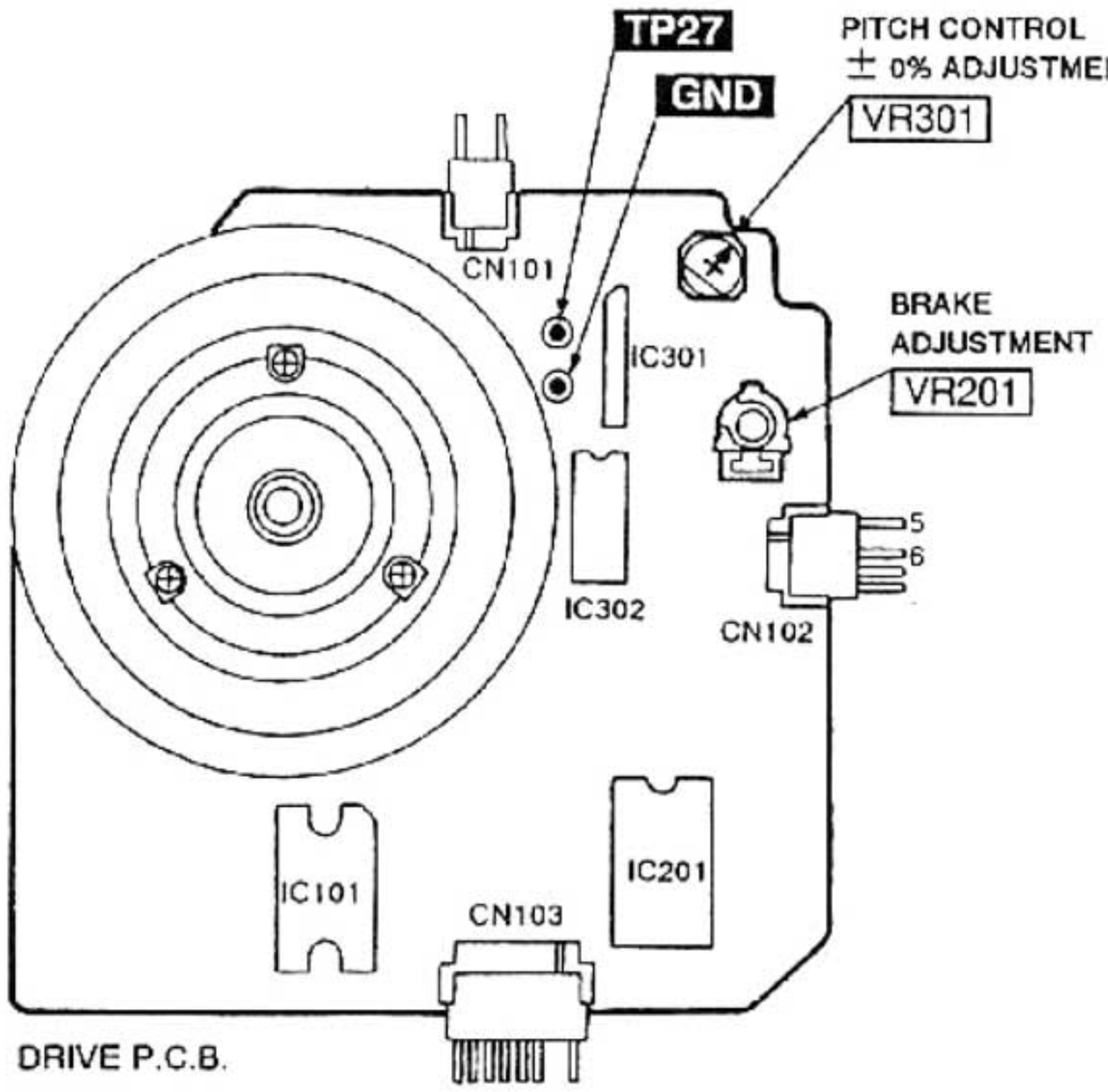


Fig. 1

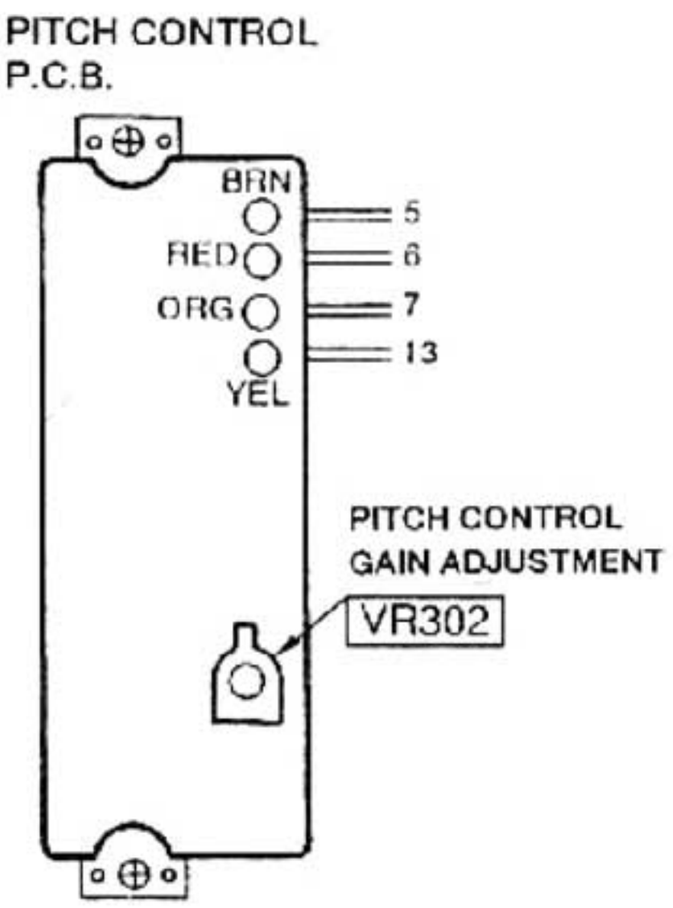
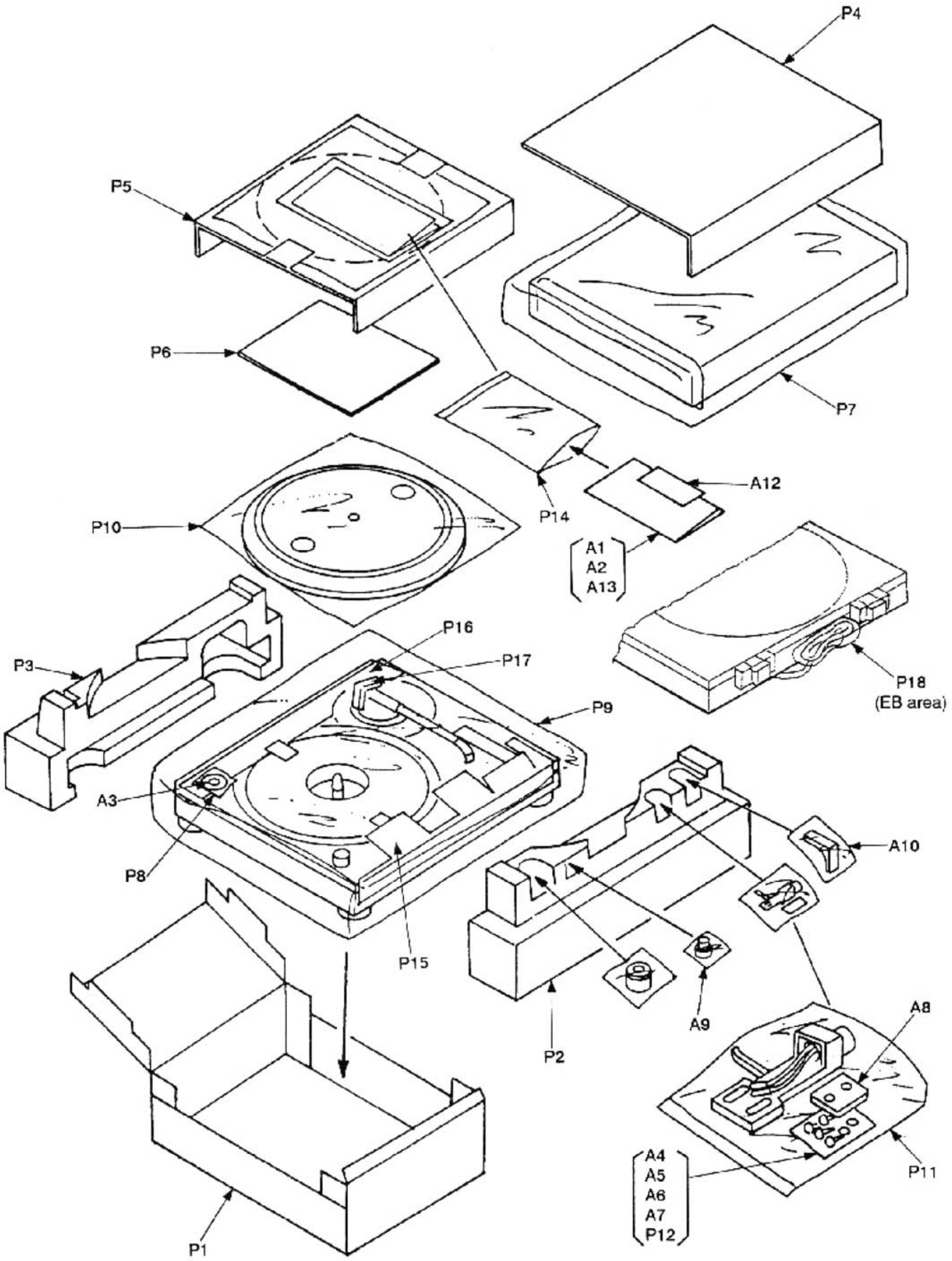


Fig. 2

■ PACKAGING


P4
P5
P6
P7
P14
A12
P10
A1
A2
A13
P16
P17
P3
P18
(EB area)
P9
A3
P8
A10
P15
A9
P2
A8
A4
A5
A6
A7
P12
P11
P1

■ REPRACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these ind cations can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CERCUIT	
IC101	AN6675	IC, TURNTABLE DRIVE	
IC201	AN6680	IC, CONTROL	
IC301	AN6682	IC, PITCH CONTROL	
IC302	TC4011BP	IC, P. CONTROL ON/OFF SELECT	
		TRANSISTOR(S)	
Q1⚠	2SD1265-0	TRANSISTOR	
Q2, 3⚠	2SD637-QRS	TRANSISTOR	
Q201⚠	2SC1846-QRS	TRANSISTOR	
Q202	2SD637-QRS	TRANSISTOR	
Q203	2SC2534-STU	TRANSISTOR	
		DIODE(S)	
D1⚠	D2SBA20	DIODE	
D3⚠	MA4051MTA	DIODE	
D201, 202	SVDPR3902S-9	LED	
D203, 204	SVDEBR5505S	LED	
D204A	MA165	DIODE	
D205, 206	SVDEBR5505S	LED	
D301⚠	MA4051MTA	DIODE	
D301A	GL8EG21	LED	
		VARIABLE RESISTOR(S)	
VR201	EVTS3MA00B54	VR, BRAKE ADJ.	
VR301	EVMH1GA00B23	VR, PITCH CONTROL 0% ADJ.	
VR302	EVTS3MA00B54	VR, PITCH CONTROL GAIN ADJ.	
VR303	SFDZ122N11	VR, PITCH CONTROL ADJ. (S301)	
		TRANSFORMER(S)	
T1⚠	SFDZ122S01E	POWER TRANSFORMER ASS'Y	
		OSCILLATOR(S)	
X201	RSXB4M13J01	CRISTAL OSCILLATOR(4.13MHZ)	
		LAMP(S)	
PL1	SFDN122-01E	LAMP	

Ref. No.	Part No.	Part Name & Description	Remarks
		FUSE(S)	
F1⚠	XBA2C025TB0	FUSE, 250V T250mA	
F2⚠	XBA2C10TB0S	FUSE, 250V T1A	
		SWITCH(ES)	
S201	EVQPXR04K	SW, SPEED SELECTOR(33)	
S202	EVQPXR04K	SW, SPEED SELECTOR(45)	
S203	SFDSSS01GL13	SW, START/STOP	
S302	RSP2B010-1J	SW, PITCH CONTROL RESET	
S401	SFDSD2MSL-C	SW, STYLUS ILLUMINATOR	
S601⚠	SFDSSS5GL13P	SW, POWER	
S602⚠	SFDSHXW01317	SW, VOLTAGE SELECTOR	
		CONNECTOR(S)	
CN101	EMCS0360L	CONNECTOR(3P)	
CN102	EMCS0460L	CONNECTOR(4P)	
CN103	EMCS0760L	CONNECTOR(7P)	

■ RESISTORS AND CAPACITORS

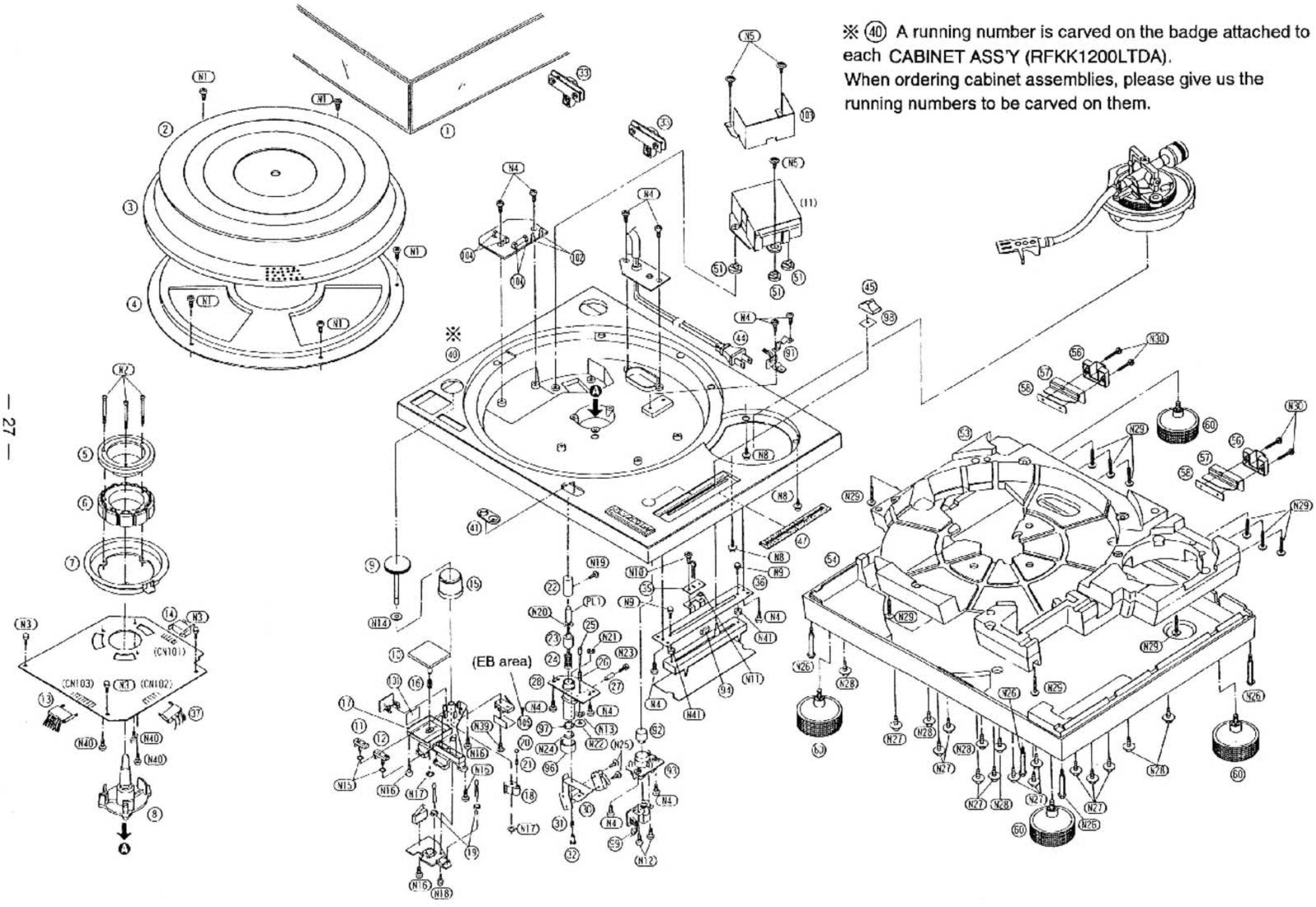
Notes : • Capacity values are in microfarads (uF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F)
• Resistance values are in ohms, unless specified otherwise, 1 K = 1,000 (OHM), 1 M = 1,000 k (OHM)

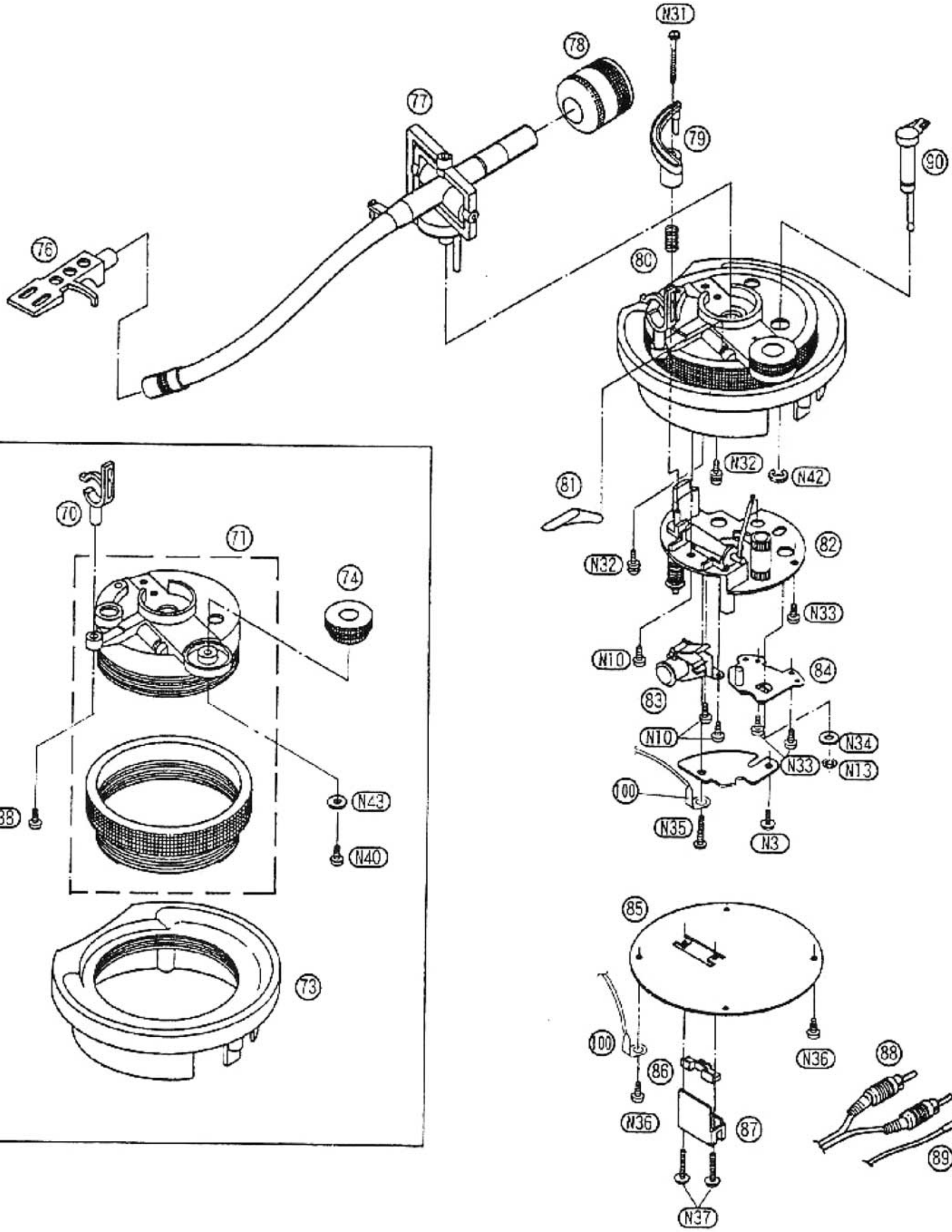
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERDS2TJ562	1/4W 5.6K
R2	ERDS2TJ682T	1/4W 6.8K
R3	ERDS2TJ272T	1/4W 2.7K
R4, 5	ERDS2TJ471	1/4W 470
R101	ERDS2TJ103	1/4W 10K
R102	ERX1ANJ4R7H	1W 4.7
R103	ERDS2TJ472	1/4W 4.7K
R104	ERDS2TJ473	1/4W 47K
R105	ERDS2TJ103	1/4W 10K
R106	ERDS2TJ150T	1/4W 15
R107	ERX1ANJ1R5H	1W 1.5
R108	ERDS2TJ103	1/4W 10K
R109, 110	ERX1ANJ4R7H	1W 4.7
R201	ERG1ANJ561H	1W 560
R202	ERDS2TJ103	1/4W 10K
R203	ERDS2TJ470	1/4W 47
R204	ERDS2TJ272T	1/4W 2.7K
R205	ERDS2TJ124T	1/4W 120K
R206	ERDS2TJ183T	1/4W 18K
R207	ERDS2TJ563	1/4W 56K
R208	ERDS2TJ224T	1/4W 220K
R209	ERDS2TJ334	1/4W 330K
R210	ERDS2TJ183T	1/4W 18K
R211	ERDS2TJ472	1/4W 4.7K
R212	ERDS2TJ151	1/4W 150
R213	ERDS2TJ122	1/4W 1.2K
R214	ERDS2TJ223	1/4W 22K
R215	ERDS2TJ472	1/4W 4.7K
R216	ERDS2TJ154	1/4W 150K
R217	ERDS2TJ223	1/4W 22K
R218	ERDS2TJ102	1/4W 1K
R219	ERDS2TJ332	1/4W 3.3K
R220	ERDS2TJ221	1/4W 220
R221	ERDS2TJ471	1/4W 470
R222	ERDS2TJ391	1/4W 390
R301	ERDS2TKG2701	1/4W 2.7K
R302	ERDS2TJ471	1/4W 470
R303	ERDS2TJ822	1/4W 8.2K
R304	ERDS2TJ561	1/4W 560
R305	ERDS2TJ181T	1/4W 180
R306	ERDS2TJ223	1/4W 22K
R307	ERDS2TJ272T	1/4W 2.7K
R401⚠	ERD50FJ152	1/2W 1.5K
R601⚠	ERD50FJ4R7	1/2W 4.7 (E, EG)
R601⚠	ERC12UGK335D	1/2W 3.3M (EB)

Ref. No.	Part No.	Values & Remarks
		CAPACITORS
C1⚠	ECEB1HU471	50V 470U
C2	RCE1EU330BV	25V 33U
C3	ECEA1EKA220B	25V 22U
C5, 6⚠	ECQM1223KZ3	125V 0.022U
C101-103	RCE1EU330BV	25V 33U
C104-107	ECQV1H104JM3	50V 0.1U
C108	ECA1EM101B	25V 100U
C109, 110	ECQV1H104JM3	50V 0.1U
C111	ECQB1H562JF3	50V 5600P
C112	RCE1HKA4R7BG	50V 4.7U
C201	RCE1AKA330BG	10V 33U
C202, 203	ECEA1HKA010B	50V 1U
C204	ECQV1H473JM3	50V 0.047U
C205	ECEA0JU221	6.3V 220U
C206	ECEA1HKA010B	50V 1U
C207	ECCR1H101K5	50V 100P
C208	ECCR1H220KU5	50V 22P
C209	RCE1AU101BV	10V 100U
C210, 211	ECQV1H224JM3	50V 0.22U
C212	RCE1HKA3R3BG	50V 3.3U
C213	ECCR1H471K5	50V 470P
C214	RCE1AU101BV	10V 100U
C215	ECEA1HKA010B	50V 1U
C216	RCE1AKA470BG	10V 47U
C217-219	ECFR1H104ZF	50V 0.1U
C301	ECQK1333GZ	125V 0.033U
C302	ECQK1682GZ	125V 6800P
C303	ECEA1HKA010B	50V 1U
C304	RCE1CKA100BG	16V 10U
C305	ECQB1H122JF3	50V 1200P
C306	ECEA1HKA010B	50V 1U
C601⚠	ECQU2A473MY	100V 0.047U

■ CABINET PARTS LOCATION

※ (40) A running number is carved on the badge attached to each CABINET ASS'Y (RFKK1200LTDA).
When ordering cabinet assemblies, please give us the running numbers to be carved on them.




N31
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N40
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N36
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89
N37

Notes: *Important safety notice:
Components identified by Δ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RYF0370-T	DUST COVER	
2	SFTG172-01	TURNTABLE MAT	
3	RFKN1200LTDI	TURNTABLE ASS'Y	
4	RFKN1200LTDJ	PANEL COVER ASS'Y	(E, EG)
4	RFKN1200LTDK	PANEL COVER ASS'Y	(EB)
5	SFMGQ20-01	DRIVE COIL COVER	
6	SFMG520-31A	DRIVE COIL ASS'Y	
7	SFMZ172-01E	FG COIL ASS'Y	
8	SFMZQ20-01A	SHAFT ASS'Y	
9	RFKN1200LTDF	KONB, POWER SWITCH	
10	RGXD023-N	BUTTON, START/STOP	
11	RFKN1200LTDC	BUTTON, SPEED SELECTOR(33)	
12	RFKN1200LTDD	BUTTON, SPEED SELECTOR(45)	
13	SFDJ122-02E	WIRE ASS'Y	
14	SFDJ122-06E	WIRE ASS'Y	
15	RFKN1200LTDG	COVER, STROBE ILLUMINATOR	
16	SFQA122-01	SPRING	
17	SFUM122-011	BASE, OPERATION	
18	SFUM122-03	CAM, POWER SWITCH	
19	SFUM015-11	SPACER, LED	
20	SFYB5-32	BALL	
21	SFQA520-01	SPRING	
22	RGKD776-N	COVER, STYLUS ILLUMINATOR	
23	SFXB122-06	DRIVE BOSS	
24	SFQA172-01	SPRING	
25	RMS0513	PIN, LOCK CANCELER	
26	SFQA520-011	SPRING	
27	SFX0172-01-1	PIN, GUIDE	
28	SFUP122-02E	BRACKET, STYLUS ILLUMINATOR	
30	SFUP122-03	PLATE, LOCK OPERATION	
31	SFQA122-02	SPRING	
32	SFXJ172-05	PIN	
33	SFATM02N01A	HINGE	
35	SFUP122-09	HOLDER, LED	
36	SFUP122-01	BRACKET, PITCH CONTROL	
37	SFDJ122-04E	WIRE ASS'Y	
40	RFKK1200LTDA	CABINET ASS'Y	
41	RGKD775-N	ORNAMENT, STYLUS ILLUMINATOR	
44⚠	SFUP122N11E	AC CORD ASS'Y	(E, EG)
44⚠	SFUP122G11E	AC CORD ASS'Y	(EB)
45	RGXD024-N	KNOB, PITCH CONTROL	
47	SFUZ122-01	FELT	
51	SFGC122-01	CUSHION	
53	SFAU122-031	BOTTOM COVER(B)	

Ref. No.	Part No.	Part Name & Description	Remarks
54	RFKJ1200LTDA	BOTTOM COVER(A)ASS'Y	(E)
54	RFKJ1200LTDB	BOTTOM COVER(A)ASS'Y	(EB, EG)
56	SFUM02N04	CASE, HINGE	
57	SFUP122-23	SUPPORTER(A)	
58	SFUP122-24	SUPPORTER(B)	
60	RYQ0160-N	INSULATOR	
70	SFPRT17201K	ARM REST	
71	RFKN1200LTDH	ARM BASE ASS'Y	
73	SFPKD12201	BRACKET, ARM BASE	
74	RMHD042	KONB, ANTI-SKATING CONTROL	
76	RYQ0153-K	HEAD SHELL	
77	RYQ0154-N	TONEARM ASS'Y	
78	RYQ0156-N	BALANCE WEIGHT	
79	SFPRT18201K	ARM LIFT	
80	SFQA829-03	SPRING	
81	SFPAB13202	KNOB, LIFT	
82	SFPAB18201K	TONEARM FIXING PLATE	
83	SFPJL18202K	OIL DAMPER	
84	SFPZB12201K	PLATE	
85	SFPZB12203	PLATE, ARM BASE COVER	
86	SFUM170-06	SPACER, PHONO CORD	
87	SFPZB12204	CLAMPER, PHONO CORD	
88	RJL4P002S12	PHONO CORD	
89	SFEL026-01E	GROUND WIRE	
90	RMHD045	KNOB, ARM LOCK	
91	N092	SPACER	
92	RGU0611-N	BUTTON, PITCH CONTROL RESET	
93	RMR0945-K	PLATE, PITCH CONTROL RESET	
94	RMX0124	SPACER	
96	SFGZ122-02	RUBBER	
97	SFUP122-15-1	STOPPER, SPRING	
98	SFXW172-032	SPACER, PITCH CONTROL	
99	REZ0836	FLAT CABLE	
100	SFERIC	LUG TERMINAL	
101	SFUZ122-04	SHEET	
102	SFER190-01	LUG TERMIAL	
103	SFUP122-21	SHIELD PLATE	
104	SJT347	FUSE HOLDER	
105	SMXB5	COVER, SWITCH	(EB)
		SCREW AND WASHER	
N1	XTN3+8JFZ	SCREW	
N2	SFXGQ20-02	SCREW	
N3	XTW3+8T	SCREW	
N4	XTB3+8J	SCREW	
N5	SFXG172-01	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
N8	SNSB10	SCREW	
N9	XYN3+C6S	SCREW	
N10	XTN3+6J	SCREW	
N11	XWE4D10BW	WASHER	
N12	XTBS26+8J	SCREW	
N13	XUC25FY-V	WASHER	
N14	SFXW910J02	WASHER	
N15	RHW26006	WASHER	
N16	XTB3+10JFZ	SCREW	
N17	XUC3FY	WASHER	
N18	XTV3+8G	SCREW	
N19	XSN17+3FY	SCREW	
N20	SFXW122-03	WASHER	
N21	XUC2FT	WASHER	
N22	XWE3D8	WASHER	
N23	XYN3+C15S	SCREW	
N24	RTW-12	WASHER	
N25	XSN2+10	SCREW	
N26	SFXG122-01	SCREW	
N27	SFXG122-02	SCREW	
N28	SNSB9	SCREW	
N29	XTW3+15T	SCREW	
N30	XYN3+C14FZS	SCREW	
N31	SFXG829-1	SCREW	
N32	XYN3+C10S	SCREW	
N33	XTW3+6T	SCREW	
N34	XWE4A10BW	WASHER	
N35	XTN3+25J	SCREW	
N36	XTB3+6JFZ	SCREW	
N37	XTW3+12TFZ	SCREW	
N38	XTN3+8J	SCREW	
N39	XTV23+10G	SCREW	
N40	XTN26+6J	SCREW	
N41	XWE3F6	WASHER	
N42	XUC5FY-V	WASHER	
N43	SFPEW17201	WASHER	
		PACKING MATERIALS	
P1	RPG2945	PACKING CASE	(E, EG)
P1	RPG2946	PACKING CASE	(EB)
P2	SFHH122-011	CUSHION, FRONT	
P3	SFHH122-02	CUSHION, REAR	(E, EG)
P3	RPN0710	CUSHION, REAR	(EB)
P4	SFHD122N05	PAD, TOP	(E, EG)
P4	RPQ0365	PAD, TOP	(EB)
P5	SFHD122-02	PAD(A)	
P6	SFHD122N06	PAD(B)	
P7	RPHD133	PROTECTION SHEET	
P8	SFHZ122-01	PROTECTION SHEET	
P9	XZB60X65A01X	PROTECTION BAG	
P10	XZB45X50A01X	PROTECTION BAG	

Ref. No.	Part No.	Part Name & Description	Remarks
P11	SPB1083	PROTECTION BAG	
P12	XZB05X06C03	PROTECTION BAG	
P14	XZB25X34C03X	PROTECTION BAG	
P15	RPQ0606	SPACER(A)	
P16	RPQ0607	SPACER(B)	
P17	RPQ0608	PAD, TONEARM	
P18	XZB10X30C03	PROTECTION BAG	(EB)
		ACCESSORIES	
A1	RQT3461-E	INSTRUCTION MANUAL	(E)
A1	RQT3463-B	INSTRUCTION MANUAL	(EB)
A1	RQT3462-D	INSTRUCTION MANUAL	(EG)
A2	RQAD117	WARRANTY CARD	
A3	RFE0025	45-rpm ADAPTOR	
A4	SFPEN3302	NUT	
A5	SFCZV8801	SCREW	
A6	SFPEV9801	SCREW	
A7	SFPEW9601	WASHER	
A8	SFPZB3501	SHELL WEIGHT	
A9	RFE0024	AUXILIARY WEIGHT	
A10	SFKD135-01	OVERHANG GAUGE	
A12	RQLC0111-1	TECHNICS LABEL	
A13	RQCB0169	SERVICENTER LIST	